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ABSTRACT

A program in English as a second language (ESL) was introduced at the University of Malaya in 1975. The purpose of the program was to develop English skills in the students of the university, with a focus on reading. The present report is a description and evaluation of this program. The following articles are included: (1) "Reading for Meaning" by Malcolm Cooper; (2) "Strategies for Reading" by Nesamalar Chitravelu; (3) "Reading Projects: Science" by Liew Sau Pheng; (4) "Spoken Interaction" by Khong Chooi Peng; (5) "The Role of Testing in UMESPP" by Tan Soon Hock; and (6) "The Revised Version of the UMESPP Material: A Resume" by Nesamalar Chitravelu. (JB)

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ELT DOCUMENTS

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107-The University of Malaya English for Special Purposes Project (UMESPP)

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Note: The courses derived from this project are being published in mid-1980 by Thomas Nelson under the title *Skills for Learning.*

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THE UNIVERSITY OF MALAYA
ENGLISH FOR SPECIAL PURPOSES PROJECT
Nesamalar Chitravelu

Our purpose in this paper is to provide some background information regarding the educational project which is the subject of all the articles in this publication. We will attempt to give the historical and pedagogic framework within which the rest of the articles should be viewed. In the process of doing this, we will also attempt to highlight those features which are likely to be of relevance and interest to institutions searching for solutions to problems concerning the role and effective use of a second language in learning.

GENESIS
The Situation

In Malaysia, in 1974, when the Project was born, the educational system was well advanced in the process of changing the medium of instruction of all institutions which still used English to the national language - Malay. This process was scheduled to be complete by 1983. English was officially endorsed as the second most important language and as the main medium for access to the latest developments in the sciences and technology. Indeed, at the University level, the majority of academic textbooks were in English. Thus, if Malay-medium university students were to be able to go beyond the information that they were given in Malay by their lecturers and tutors, they would need a competence in reading English which was akin to that of an educated native reader of English.

The authorities in the University of Malaya realised that this level of competence simply did not exist. There was a very large gap between the English reading competence of the school-leaver (even after eleven years or more of studying English as a subject) and the level required to be able to use University textbooks with ease and efficiency. Since the whole University population would ultimately come from Malay-medium schools, the University was faced by the prospect of a student community the majority of whom would be unable to take full advantage of a University education - assuming, that is, that such an education implies the ability to extend one's knowledge independently.

Anticipating this problem, the University of Malaya had already conducted a series of small-scale experiments under a programme called 'Read and Understand' in order to try out possible solutions. The Vice-Chancellor, Professor Ungku A. Aziz then decided that the time was ripe for a major research effort, and Professor John Sinclair of the University of Birmingham, United Kingdom, was invited to survey the situation and make a research proposal.

The Project Brief

The main features of the Project as proposed by Professor Sinclair and accepted by the University were as follows:

1 A one-year course to consist of four parallel strands of instructional material with accompanying teachers' notes was to be written.

2 The course was to meet the reading needs of students from schools where the national language was the medium of instruction.

3 The course was to be administered in the first year of the student's University career.

4 Three of the four components of the course were to be common-core and one was to be subject-specific. It was argued that reading skills are not language-specific but universal and that there is a core of language (for example, certain structures of argument and forms of presentation) which can be identified as 'academic' and which is not subject-specific. Therefore a course which comprises a common core strand with a subject-specific complementary strand to fit the special demands of each discipline is more economical and cost-effective in terms of time spent in preparing teaching materials than the usual ESP materials which duplicate the core material with text content specific to each discipline.

5 One of the common core components was to be Spoken Interaction to accommodate the students' desire to be able to communicate in English, to provide the ancillary skills required when an interactive, integrated approach to teaching reading is taken, and to provide variety.

6 An instrument in the form of a test or battery of tests should be researched, devised and tested for effective evaluation of the instructional material.

7 Provision should be made for maintenance, period evaluation and extension of the material.

8 The writing of the material and the administration of the Project should be the joint responsibility of local staff and foreign experts. This structuring of the Project had the following aims:

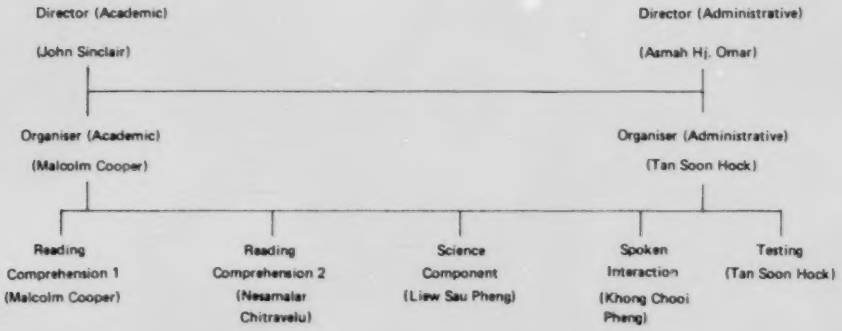
a to ensure the greatest chances of writing successful material by a productive combination of foreign expertise in the theory and practice of ESP and local knowledge of the target population.

b to develop skilled local personnel who can not only contribute to the initial materials production but can also evaluate the material, improve and maintain it, train others to understand and use it, and then apply the skills they acquire in working on the Project to the solution of fresh problems.

Project Organization

In March 1975, the University of Malaya launched the English for Special Purposes Project (UMESPP) jointly sponsored for three years by the Inter-University Council, the University of Birmingham and the British Council.

The personnel involved in the Project were organized in the following way:



Defining problems and needs

March 1975 - June 1976

We felt that the solution to our problem could not be prescribed by just us alone but that the ultimate design we come up with must take account of and reflect the perceptions of every participant in the process of education.

We started work with a large number of questions, not all of which we were able to answer empirically, but for which we certainly attempted to devise trial solutions. The questions we asked and their potential answers related not merely to teaching and learning language but to the nature of educational processes themselves. It was important to us to know how teachers characteristically taught and students characteristically learned, for three reasons: first, so that we would know what teachers and students were used to and thus how carefully we would have to phase in any novel experience; secondly, so that we would know the range of alternative methods and activities we could call upon, one of the important resources of the language teacher being the option to take content that is familiar to the students,

present it in different ways and ask them to perform different operations on it. Finally, we needed to know how far students were obliged to make use of textbooks in English and the kind of assistance in developing reading skills that subject specialists might be able to give us. For our part, we had a fairly sophisticated notion of what reading at the University level might consist of. It there was a great disparity between our notion and reality, then it would have an influence on materials and methods design. For example, if, despite our terms of reference, we found that students actually did minimal reading in English because they could 'get by' without it, we would have to work particularly hard to make a reading programme motivating and credible; and subject specialists could make a vital contribution, not least in ensuring that independent reading ultimately played an adequate role in their educational strategy.

To find answers to our questions we used a variety of instruments:

1 A questionnaire to students.

2 A questionnaire to language teachers.

3 A questionnaire to subject teachers.

4 Interviews with students, language teachers and subject teachers.

5 A reading attainment Test.

6 Some diagnostic tests.

7 Discussions with ESP specialists in UK.

8 A pre-pilot testing of sample materials..

Questionnaires and Interviews with Students, Subject Teachers and Language Teachers

Questions

Here are some examples of the kinds of questions to which we sought answers:

The students

Why did so many students fail to reach anywhere near the required standard for reading threshold University texts in English, in spite of eleven years or more of exposure to the language as a subject?

What was the attitude of students to English? How did the language fit into their short-term and long-term plans? If they studied English, what language and reading skills did they need? What did they want? What was their previous experience of learning English like? What was their notion of language teaching and of the language classroom?

What was the nature of their general educational experience? What notion did they have of learning in a University setting?

The language teachers

What was the attitude of language teachers to language teaching? What notions did they have of the content and methodology of language teaching in their own setting? How did they conceive of their roles as teachers and the students as learners? How did they perceive their students' problems and needs? What kind of solutions would they recommend?

The subject teachers

How did the teachers of science, economics, etc, perceive students' problems and needs in using English textbooks? What kind of skills and strategies would their students need in order to fulfil learning tasks which required reading? To what extent did they require their students to read in English?

Findings

Students informed us in questionnaires and discussion that they considered reading in English important to their studies, but difficult. However, their motivation to spend further precious time on English was generally low. They judged the quality of language instruction and their own competence by their ability to speak English fluently rather than read it. In the long-term they thought that good spoken English would be an advantage, especially in their future work. From observation we noted that students expected the teacher to maintain a dominant, informing role in the classroom, while they regularly assumed a relatively passive role. Reading was emphatically treated as a passive, receptive process, except during the routine 'interrogations' (when the teacher asks the class questions on the text and students assume non-comprehending postures because they know that if they hold out long enough the teacher will, in desperation, give them the answer!). None of the students interviewed had experienced working in small groups with peer teaching and learning as an alternative to the traditional lecture-style language classroom. The students finally suggested that about forty per cent of the content of their reading should be related to the subject they were studying. The remainder could be wider-ranging (eg social problems and remedies).

Language teachers endorsed nearly all the main points made by the students. They emphasized both reading and speaking skills and the importance of content that was relevant to students' courses. They were sympathetic to new ideas, and interesting ventures in materials design were already made. However most teachers were used to a teacher-dominated classroom (a common complaint was that students were so quiet and shy!). Their proposals for improvement tended to reproduce the style, techniques and sometimes the content of the students' previous language learning experience.

Staff in the various faculties of the University tended to think that students had both conceptual and linguistic problems in reading. The main weaknesses

000 9

identified were in operating higher order cognitive strategies such as inference, extrapolation and synthesis.

A significant proportion of staff also thought that students could reach a general degree standard with little or no reading in English. This was not a situation of which they necessarily approved, but it was a useful observation for project design.

The Reading Attainment Test

This test, which was intended as a global measure of reading comprehension, did not prove as useful as was hoped. It consisted totally of academic texts which were linguistically way above even the best of our target population. The result was that the score dispersion was very poor with all the students bunching together at the lower end of the scale. However, although it lacked in sensitivity, it allowed for the following observations and speculations to be made:

1 The linguistic and reading level of the target students was extremely poor.

2 There was a correlation between general academic success and success in language learning. In our sample of Arts, Economics and Science students, the Malay-medium Science students obtained far better results (mean: 30.47) than the Arts students (mean: 16.19). This, we felt, might be related to the school streaming system that selects the best students for the Science stream.

3 The high standard deviation in the scores recorded by each faculty indicated great individual variation in language ability within the University.

4 The variation in performance between students from different faculties on those items which required channel conversion showed a correlation between kind of communication input (graph, table, diagram etc) and students' familiarity with that input. This led to the speculation that perhaps the best payoffs can be expected when discipline, methodology and language training complement one another.

5 The different results obtained by urban and rural students led to the speculation that perhaps exposure and cognitive ability are as much determinants of performance in reading as linguistic ability.

Diagnostic Tests

Although the Reading Attainment Test was devised as a global measure of comprehension, an analysis of the distractors used in the multiple choice items in that test pointed out, very broadly, the areas of difficulty faced by students in reading academic texts. More sensitive diagnostic tests

then sussed out the exact nature of the problems students faced in each of these areas. For example, the Reading Attainment Test pointed out that student ability to use contextual clues and rhetorical structure as means to decoding difficult texts was poor. Diagnostic tests were then devised to identify which contextual clues and which rhetorical devices students knew and which ones needed teaching. The results of these tests need not concern us here as they did not significantly affect design except insofar as they helped to decide how much time each problem area was to be given in relation to other problem areas dealt with in the course. These tests were primarily intended as guides to writers of specific lessons within the course.

Discussions with ESP Specialists

While the team members were working out their blueprints in the University of Birmingham, they met and had discussions with several people concerned with the educational process in general and with ESP in particular. The team was particularly fortunate in its opportunity to benefit from discussions with people who had worked on other projects: KAAU in Saudi Arabia and Tabriz in Iran. The Project owes much to each of these people who contributed most generously of their time, knowledge and experience in enabling the team to get a fair idea of the state of the art: the several approaches to it, the factors to be taken into account in ensuring viability.

Pre-Pilot Experiment

With the intuitions afforded by reading in the field of ESP, data from the questionnaires and tests, and discussions with ESP specialists as guides, the materials designers prepared ten sample lessons with accompanying teachers' notes for each of the four components for pilot testing. The lessons and their classroom testing were intended to serve the following needs:

a As the materials for the course were not going to be written by the course designers alone, it was felt that some models of the approach and the methodology to be taken in the construction of lessons for each of the components needed to be given to the potential writers. The ten lessons were constructed to give an indication of the range of activities possible.

b The materials for the course were to be constructed with certain theoretical and pedagogic assumptions which had never stood the test of the classroom before. These needed to be empirically tried out.

c The pedagogic infrastructure that would best ensure that the materials achieve their optimum effect also had to be determined. We needed to know, for example, the answers to the following questions: What kind of activities would students find useful and motivating? What is

the time period that should be given to obtain the best results from each of the different kinds of activities? What kind of physical arrangement of the classroom is needed to obtain the best results? What combinations and permutations of student grouping would be effective for which kind of activity? What kinds of activities are teachers at home with and what kind of activities do they need help with. What kind of help do they need? What methodological devices articulate which kinds of aims most effectively? etc.

In order to experiment, the University and the Ministry of Education enabled us to select forty post school certificate students from rural secondary schools who might have the potential to enter the University's two-year Science Foundation Course. These students were divided into two groups and taught two one-hour lessons a day for one month, each lesson being followed by extensive evaluation (written and discussed) by students and teacher evaluators. At the same time all teachers of English were gradually immersed in the experimental materials and methods, first as observers, then evaluators, and finally as teachers. This proved a highly successful form of teacher training.

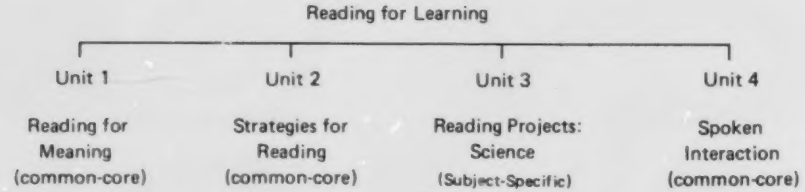
Experiment and evaluation demonstrated again that the most difficult and danger-prone period in a new programme is the beginning. We found that the beginning presented too many novelties and complexities - in concepts, language and methods - at once. Nevertheless, it was clear that in group interaction, with problem-solving activities, we had found a way of liberating students from their inhibitions in what was - to all intents and purposes - a foreign language. They responded with particular enthusiasm to Spoken Interaction which uses card games and competitions as contexts for communication.

Summary evaluations of each lesson taught were written up and these informed the blueprint that each project team member then wrote for the forty lessons that the component he or she was responsible for would consist of.

THE PILOT MATERIAL

Course Design

The Pilot material for the course was to be organized in this way:



Course Design Principles

Each member of the UMESPP team was given a large measure of independence in researching and designing the shape the Unit for which he or she was responsible would take. Everyone, however, had to work within the framework of certain design constraints which the team jointly worked out and tacitly agreed should be features of the whole course. How each Unit articulated these principles in practice will be discussed in the articles on each of the Units. Below the principles are set out in very broad general terms:

Motivation

For our target group of students, psychological set and learning readiness are as important as the content and method of learning. Therefore maximum effort should be expended in coaxing students to want to learn and to want to learn in the way we think they should learn.

Interactive Approach

1 The relationship between a text and a reader is analogous to that between a speaker and a listener. It involves active participation. The methods employed in teaching reading skills should reflect this.

2 Learning is the product of interaction between all elements in the learning situation. Therefore, maximum participation of each student and optimum contribution of each participant in the educational mix of the student, his peers, the instructional material and the teacher should be ensured. Oral communication to facilitate this kind of mutually beneficial interaction should be an integral part of all lessons. A fair balance of group, paired, class and individual work should be a feature of the course.

Face Validity of Materials and Methodology

Texts, tasks and methodology should be matched to the context of academic study and the maturity level of the students:

1 The texts should be authentic in that their level and range should be fairly representative of 'university-type' writing.

2 What students have to do with and to the materials should be fair simulations of what they would normally have to do with such materials in real life situations.

3 For *Spoken Interaction*, the content and methodology should take account of the student's real life needs in the university and the fact of his adulthood.

4 The methodology employed should take account of the students' maturity level and experiential background and simulate as far as possible the kinds of mental operations the students would perform in the study of their subjects.

Clarity of Aims

To ensure maximum flexibility and provide valid criteria for the measurement of success, both students and teachers should be given a clear statement of the aims of each lesson.

Responsibility for Learning

Mature students should take the major responsibility for their own learning. The teacher should be a catalyst, adviser and friend, and capable, like all human beings, of error. Students should rely much more on their own resources and those of their peers.

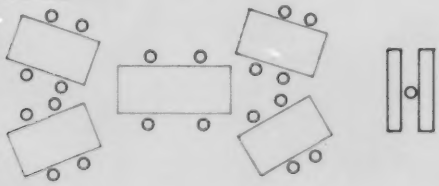
Facilitating Infrastructure

1 As the teacher is basically the 'manager' of the course, every Student's Book in the Course should be accompanied by a Teacher's Book. The role of this book would be to assist the teacher to obtain the best possible results from the lessons. It should contain a statement of the aims of each lesson and activity, suggestions on procedure, advice on feedback and information on the location of the materials for each lesson. It should also provide answers and, where necessary, give explanations for answers.

2 The layout of the material should ensure maximum ease of access and visibility of the teaching point.

3 The quality of printing and publishing should be the same as the final version to ensure that the student would have the same psychological receptivity to this material as he would to the final and 'real' material.

4 The physical arrangement of the classroom should allow for maximum flexibility in the grouping of students. The following arrangement or one as close as possible to it should be used as it was found to be the best during the pre-pilot testing of the material:



Task Orientation

As language to do something with, rather than language teaching per se, is the aim of UMESPP, all the activities in the course should be task-oriented. Language should be the data used to arrive at a conclusion or the tool to get something done.

Variety

The number of students the course is intended to serve is vast. Therefore the possibility of individual variation in responsiveness to different methodological devices and modes of operation is likely to be very great. To take account of this and to ensure that student interest does not flag because of too frequent and repetitive use of the same techniques, a sufficient variety of styles of teaching and communication types should be ensured.

Materials Production Workshop
(March-April 1977)

The final version of the pilot material was written during a six-week Materials Production Workshop which brought together all the English language teachers of the University of Malaya, a consultancy group of ESP specialists from UK, a design team consisting of a designer and two illustrators, a Malay language consultant, a clerk, four typists and one Xerox machine operator. Science consultants were available when needed.

Each Unit was written by a team consisting of a Project team member as leader, two teachers and a UK consultant.

After orientation and discussion of the pre-pilot experience (including watching video-taped sequences of learning), each writer was given a brief for the lesson or group of lessons he was to write. After being drafted, the lesson was checked by the team leader and consultant, and subsequently revised and re-typed. The teacher's notes were then written. When all the material had been written and had reached second draft form, it was re-evaluated and reviewed.

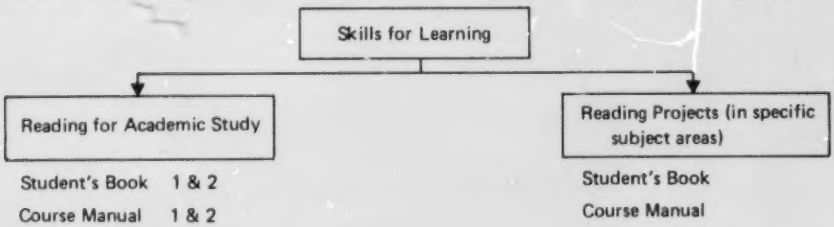
The Pilot Testing of the Material

The material was tried out on students from the Faculty of Economics, the Faculty of Science and the Centre for Foundation Studies in Science. Data was obtained through questionnaires to students (first worded in English, then in Malay) and teachers. Initially, the sample tested consisted of approximately 120 students but in the final stages some lessons had to be tried out with only one class of 16 students as a result of exemption exams in the Faculty of Economics and absenteeism in the Science Faculty where the English Course is not compulsory and non-examinable. Because we had

written far more material than there was time to teach, we had to distribute lessons and classes with the net result that no class went through the entire programme. The results of this experimental year of teaching are reported in the relevant sections in the articles on each of the Units and in the article which deals with the final version of the materials. For quantitative evaluation, comparing pre- and post-tests, see the article on Testing in this publication.

The final version

As a result of criticisms regarding the lack of integration of the material and the confusion that arises from having to deal with 26 volumes and 4 Units all purportedly part of the same course, the Material Revision Workshop recommended that the 3 common-core units of the course be integrated into a new course called *Reading for Academic Study*. *Reading Projects* in specific disciplines was for obvious reasons to remain separate. The four Units that then were jointly called *Reading for Learning* were renamed *Skills for Learning*. The new course is now organized in the following way:



The status quo

According to its terms of reference and by the very nature of the problem it sets out to solve, UMESPP cannot but be a continuous process. More *Reading Projects* need to be written, to fit the needs of other faculties besides Science; teacher training programmes need to be devised and maintained; final versions of the material need to be published and arrangements made for continuing evaluation and revision of the materials. Some of these processes are already in motion now. *Reading Projects: Science* and *Reading for Academic Study 1* (both Students' Book and Course Manual) have already been published by the University of Malaya and are now currently being prepared for the international market by Thomas Nelson. *Reading for Academic Study 2* is in the final stages of revision and *Reading Projects: Economics* is in first draft form. Three slide shows and a video-tape of interaction in a UMESPP classroom are now in the final stages of preparation. These are intended as introductions to UMESPP for all interested parties and for teacher training. Evaluations of the final version UMESPP material have already been instituted in those classes which are using this material.

READING FOR MEANING
Malcolm Cooper

Background and Rationale

This Unit of the original UMESPP design was informed by hypotheses that are common to the project as a whole. It assumes that:

1 all reading is motivated by a purpose (cf Open University, 1973) which will define and delimit what one reads and how one reads;

2 that reading and understanding depend upon the prior knowledge of the reader: his knowledge of the mechanics of reading, his linguistic knowledge and his knowledge of the subject (cf Smith, 1971, 1978) and his ability to apply reading skills and strategies (cf Barrett's taxonomy of reading skills, in Open University, op.cit.).

The feature however, which distinguishes this Unit from its common-core fellows is its explicit focus on aspects of linguistic competence. It assumes first of all that linguistic competence implies not only a knowledge of syntax and lexis appropriate to the study discipline, but a knowledge of the structure and organisation of written discourse. Here, we are concerned with the reader's ability to understand and use features of discourse coherence (cf Widdowson, 1973) in order to create, predict, confirm and modify an integrated model of the communicative functions of the discourse. Integral to this activity is a knowledge of features of textual cohesion which enable the reader to build, maintain and retrieve the information structure of the text (cf Widdowson, ibid, Halliday and Hasan, 1976). Implicit in the notion of the reader as a creator or builder of his own model of a writer's meaning is the belief that reading is a dynamic and interactive process (cf Wardhaugh, 1969, Widdowson, 1979). Meaning in other words is not given; it is negotiated.

Meaning however, is not simply created by a retrospective process of accumulating and integrating semantic units into a larger whole. Reading for Meaning assumes that a reader can use his knowledge of linguistic forms in their discourse context in order to **predict** what a writer will do. Considerable support for the hypothesis that prediction is crucial to reading and understanding is marshalled by Smith (op. cit.) and experimental evidence is provided by Goodman (1967), and Kolers (1969) among others. However, the theory of language that informs their work does not extend in any systematic way beyond the sentence. Smith's claims for predictability at the discourse level are challenging but largely speculative. However, Winter (1974, 1977) has explored the semantics of clause relations and identified cases where the presence of one member (a clause, sentence or larger unit) predicts another member, thus staking a claim and a possible rationale

for the notion of well-formed discourse (cf Labov, 1972). Predictability which is founded upon linguistic criteria is manifestly a resource for the reader; if he can use clues as to what the writer will do he is increasing the redundancy of the discourse, and enhancing his reading efficiency.

Research

Given a perspective on reading which emphasised the reader's role in using linguistic evidence in discourse to create and predict meaning, it was important to establish which aspects of linguistic competence should be given priority. Tests were designed and conducted to see how English and Malay medium students compared in their general comprehension of English texts, and how they compared in their knowledge of specific linguistic areas. At the same time, scores on the general and specific tests would be correlated in order to estimate their relationships. The areas tested ranged from understanding morphemes to understanding and creating coherent paragraphs. Specifically we tested the understanding of affixes, words in context, grammatical and lexical cohesion, syntactic features in context (eg modality, complementation, tense), subordination, and inter-sentential relationships, both explicit and implicit, conveying such meanings as concession and contrast, condition and consequence, statement and reformulation, addition, or example.

The results indicated first that performance on each specific test correlated highly or very highly with performance on general comprehension (measured traditionally by multiple choice questions on three texts). Secondly, Malay medium students revealed insecurity in all linguistic areas. However, the features which discriminated most clearly between English and Malay medium students were located not in the areas of meaning carried by syntax or grammatical cohesion, but in word meaning from context, lexical cohesion, and inter-sentential relationships. The larger the unit of meaning, the greater the comprehension gap between the two groups of students. The more experienced readers of English, while fallible in their response to syntactic meaning, were distinguished by their marked ability to see, predict and infer coherent semantic relationships beyond the sentence level, and to use the knowledge of greater wholes to infer the meanings of parts. Clearly they had a far greater **lexical** competence than less experienced readers, which enabled them to infer meanings within and between sentences. Moreover, feedback from Malay medium students' evaluations of pre-pilot lessons revealed a serious ignorance of sub-technical vocabulary.

From such evidence it was recognised that the programme as a whole had a responsibility for building up lexical competence as an essential basis for the exploitation of linguistic knowledge in developing reading strategies and skills. However, since students tended to read word for word and to treat text as a mine for vocabulary, pre-pilot and pilot programmes were to place their main thrust on developing new attitudes to words, and on strategies for arriving at word meaning. Only later, in the revision, was an appropriate place and approach found for vocabulary-building.

Aims

In the light of our hypotheses and research findings we formulated the following general aims for Reading for Meaning:

1 To help students to understand the ways in which writers of academic textbooks use English to relate ideas, and to use this knowledge to perceive, predict and infer such relationships;

2 to help students to use this linguistic knowledge in the application of selected skills and strategies to reading for a purpose.

These aims were then further defined as follows:

1 Linguistic

To sensitise students to the ways in which writers express and organise the following kinds of meaning:

a sequencing events in time

b giving examples and reformulating ideas

c comparing and contrasting

d adding and reinforcing points

e conceding and affirming

f changing focus

g giving reasons purposes conditions and results

h relating ideas through grammatical and lexical cohesion

2 Reading skills and strategies

To help students to use the above linguistic knowledge to skim, scan or read intensively as appropriate for the following:

a reading for specific information

b reading for relevant information

c reading to identify the main point

d deducing the meaning of unfamiliar units of language

e interpreting linear text in terms of diagrams, charts, etc., and vice versa.

f summarising relevant information

Pilot Course Design

In pursuance of the above objectives, it was decided that the first phase (consisting of twelve lessons - one hour of class-time, half an hour of 'work-shop' time, and a home assignment) would have an explicit linguistic focus. Sample realisations of a selected semantic relationship would be explored in context, and reading tasks would then be presented which depended for their solution on the understanding of the relationship. In the subsequent twenty eight lessons, the organising principle would change. Each group of four lessons would have a **thematic** unity. Authentic text of increasing complexity would automatically embody semantic relationships previously explored, and readers would develop their linguistic sophistication as they applied their knowledge and reading skills to a variety of reading tasks. Explicit attention however would still be given to the skill of creating coherent discourse, but this time there would be no external assistance; clues would reside entirely in the text itself. In the first phase, revision and recycling would be explicit. For example, Lesson 7 would recycle expressing events in sequence which were explored in Lesson 1 at the same time as it presented a new feature. In subsequent lessons recycling would be continuous and implicit in the recurrence of activities such as 'Build a coherent text' and 'Read for relevant information.

Text selection

In phase one, text would be selected, adapted or specially written in order to throw into sharp relief the realisations of the target semantic relationship. For all other lessons, texts would be authentic and chosen from College and University textbooks. The criteria for selection were the following:

1 Texts should reflect the students' expressed interests and concerns: their subjects, and matters that affected them personally and the society that they lived in;

2 As befits a common-core programme, texts should be as far as possible relevant and accessible to students of all disciplines;

3 Texts should be inherently interesting - to both teacher and student.

Grading was performed intuitively in the first instance on the basis of the conceptual proximity of the content to the students' prior knowledge and experience. Thus content related to the theme of Human Behaviour preceded Economics, and Economics preceded Technology.

Methodology

Our methodology had to respond to a number of factors:

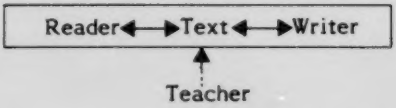
1 Students, as noted, were accustomed to a passive and receptive role in the classroom; but they engaged in a considerable amount of informal peer-group teaching and learning outside it;

2 Students and teachers observed both before and after experience of small-group work that they favoured a mix of teaching and learning modes, including class-work, individual work, and group work;

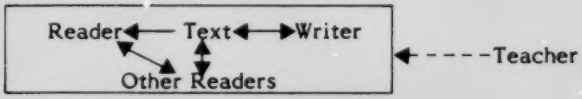
3 We had to translate our conception of reading as dynamic and interactive into an appropriate methodology for achieving it;

4 We had to develop appropriate methods for developing purposeful reading.

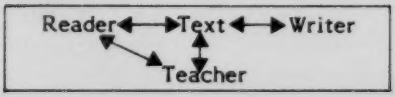
In order to achieve a variety of patterns of interaction, each student was involved in a three-stage process. In the first, following the establishment of aims and the presentation of the activity, the reader would interact with the writer through the medium of the text, the teacher helping in cases of difficulty:



In the second stage, each reader would interact with his neighbour or his group as well as with the text and the writer, the teacher again advising where necessary:



In the third stage, the teacher would enter the interaction to gather and provide feedback:



In order to develop the ability to create and predict coherent discourse, it was decided to use the device of unfolding the text gradually; at each point where the text stopped, options would be provided for the students to choose from. The options were of two basic kinds, paraphrased as follows:

U... 21

1 In the light of what the writer has said, what is he likely to do next? (a or b?)

2 In the light of what the writer has said, which of the following sentences is likely to follow? (a or b?).

The former obliges the reader to predict, and the latter obliges him to use both prediction and retrospection to establish coherence.

In the first phase, students would be guided by the lesson aim and by glosses; for example, 'The writer is now going to give an example. Which sentence (or paragraph) gives an example?' At all times, decisions would be constrained by the inherent coherence of the semantic whole, and by the linguistic clues to the writer's intended relationship. By such means, and in a variety of formats from programmed learning to 'flow-texts', students would be constantly obliged to interrogate the text and themselves in order to 'make sense'.

The solution to the question of ensuring purposeful reading was not a novel one; but at the time it was notably absent from the majority of comprehension textbooks. Purposes were specified, and problems set **before** the students started reading. Whatever strategy they subsequently adopted, they therefore knew what their purpose was.

Writing the Pilot Version

Each writer in the team was provided with:

the unit aims and the aims of each lesson

the design for each major phase and the design for lessons within the phase

a checklist of linguistic features realising target semantic relations (developed from Winter, op. cit.)

a checklist of methods appropriate to each stage of a lesson and to different lesson aims

a bank of text material

materials and evaluations from the pre-pilot testing

To illustrate, the structure of a lesson in the first phase was as follows:

1 Explanation of the lesson aim(s)

2 Presentation of target linguistic feature(s) in context with activity (demonstration, explanation, problem solving) to establish the meaning;

3 Practice, in which readers use the knowledge gained in order to create coherent texts, and understand literal meaning and implied relationships;

4 Application, in which readers apply their linguistic knowledge in the development of reading skills in reading for a purpose.

In subsequent lessons, the progression was as follows:

1 Explanation of the lesson aim(s);

2 Activation of prior knowledge of the subject or theme;

3 Linguistic practice, in which students organise larger units of discourse so that they are coherent;

4 Skills practice in which students develop a specified reading skill;

5 Recapitulation, in which students complete a summary of what they have read which combines attention to coherence and appropriate context.

Because phase one was structured differently, it was entrusted to one writer for the first draft. The subsequent lessons were written by three writers, the whole being coordinated by the team leader.

Findings of the year of pilot testing

Students took time to adjust to the novel demands of the programme: their new roles and responsibilities in the classroom, new linguistic and behavioural objectives and different methods for achieving them. Having done so however, they responded with dedication and enthusiasm to the challenges - especially in the Centre for Foundation Studies in Science. Feedback from questionnaires indicated that they relished being made to think and being able to develop linguistic competence in small group activity where they could experiment without 'losing face'.

For a variety of reasons, no one student completed the whole forty lessons, and so quantitative evaluation of progress in the whole programme could not provide a reliable measure. (See the section on the role of testing in UMESPP). However, the evidence that low scorers had not benefitted from the programme was consistent with the subjective evaluation of teachers and students that in the whole programme as well as in Reading for Meaning it was necessary to provide students with a more carefully graded introduction to the roles objectives and methods so that both more able and less able could experience success from the beginning and develop positive attitudes to the programme.

The following were the main points singled out for attention:

1 Students were often confronted with novelty in roles, objectives and methods all at once. The revision had to ensure that novelty was encountered in just one area at a time. The new foundation programme therefore contains activities whose specific objectives are to initiate students into new roles and methods in the context of familiar language, as well as activities that focus on linguistic objectives in the context of familiar methods or behavioural roles.

2 The rubrics were insufficiently controlled and standardised; they were often too complex to help students into objectives and methods. Because it had always been the responsibility of the teacher to initiate new activity, aided by the Teacher's Notes, it was decided to transfer the detail of the instructions to the latter, leaving simple statements following a standard formula in the Course Book.

3 The linguistic and reading skill aims were found - in the context of the global objectives - to be necessary but not sufficient. In the first place, student's recognition vocabularies proved inadequate for them to grasp the target linguistic objectives of the Unit early enough to profit from the whole lesson. In the second place, and this was true of the entire common-core programme, the Unit did not adequately progress towards the essential terminal objective - to help students to use the language and skills they had learned in an integrated assault on study tasks. The first deficiency was remedied by including at the end of each lesson a self-study task which helped students to build up their knowledge of sub-technical vocabulary. In so doing, they also applied their developing knowledge of the ways that writers organise meanings in texts. The second defect was remedied by integrating the common-core programme and terminating it with a large scale reading project (See the section on the revised version).

4 Related to the foregoing point is the problem of grading of content. In the early stages, texts were sometimes too long and complex for the learning point to emerge transparently. Conversely, in the latter stages, students had insufficient opportunity to practise their skills on extended text. It was evident that writers were so carried away by their concern with exploring small-scale semantic relationships that they neglected the wider objectives of the Unit. Revision therefore concentrated upon selecting or constructing short transparent texts to illustrate and practise learning points in the foundation course, leading students in each lesson and in the whole Unit towards longer and more complex tests.

5 We had planned and written enough material in each lesson for the class-lesson itself, for a workshop session and for a home assignment. In the event, time for a workshop session was not forthcoming, and the home-assignment proved unviable. In consequence, there was too much material for the class-lesson, and attempts to complete it set back the whole programme. In any case, it was not clear which activities were essential in order to achieve the lesson aims, and which were optional. Nor had activities

been clearly and unequivocally designed for the working environments originally specified. No explicit provision had been made for progress checks, and the lesson design was not consistent with that of other Units. Integration of Units and revision rectified all these points.

6 The Teacher's Notes proved to be strong on generalisations which were not always transparent, and deficient in detail. With the integration policy, a standardised format for a Teacher's Manual was produced which gave proper attention to the specification of general and specific aims (linguistic, behavioural, methodological, attitudinal), cross referencing to related lessons, adequate advice on presentation, and effective feedback.

In the final version, Reading for Meaning has lost its independent status but its aims, content, and essential character remain intact. It takes its place in an extended learning sequence which cumulatively develops study and communicative skills in English on a broad front.

The appendix to this section contains activities from a lesson which focusses on ways in which writers express main points in addition to, or at the expense of other points.

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Lesson 30 Arriving at Main Points (1)

This lesson is about how writers agree with an idea but then give another idea which is more important. It is also about how writers add points and make them stronger, i.e. reinforce them.

Activity A

△○ ●●

Which idea is most important for the writer?

This is a step-by-step activity. At each step there is a question and a choice of answers.

Read each step and tick the correct answer to the question.

Step 1

Which is the most important idea for the writer in each of the two sets of sentences given below?

(a) **Machines often help us to solve problems in our daily lives.**

Machines make new problems for us in our daily lives.

(i) the first sentence

(ii) the second sentence

(iii) impossible to say

(b) **Modern machine industry has made many more skilled jobs.**

In the early years of machine industry many skilled workers lost their jobs.

(i) the first sentence

(ii) the second sentence

(iii) impossible to say

Step 2

In the next two sentences the ideas in Step 1 have been rephrased. Which idea in each sentence is most important for the writer?

(a) **Although machines often help us to solve problems in our daily lives, they also make new problems for us.**

(i) Machines often help us to solve problems.

(ii) Machines make new problems for us.

(b) **It is true that in the early years of machine industry many skilled workers lost their jobs, but modern machine industry has actually made many more skilled jobs.**

(i) Modern machine industry has increased the number of skilled jobs.

(ii) In the early days of machine industry many skilled workers lost their jobs.

Notice how words like "although" and "it is true" make clear which idea is most important for the writer.

Step 3

Now make use of what you have learnt in Steps 1 and 2. Which idea is most important for the writer in each of the following sentences?

(a) **Industrial production has increased although six per cent of workers have no jobs.**

(i) Industrial production has increased.

(ii) Six per cent of workers have no jobs.

(b) **It is true that industrial production has increased but six per cent of workers have no jobs.**

(i) Industrial production has increased.

(ii) Six per cent of workers have no jobs.

Step 4

(a) Here are two ideas. You agree with both ideas but you think that the second is the most important. Write a sentence to show this. Follow this example. "It is true that . . . but . . . ."

Motor-cars make a lot of noise.

Motor-cars help us to move about easily.

It is true that _____

_____

(b) Here are another two ideas. This time you think the first is most important. Write a sentence to show this. Use "Although . . .".

Women should receive the same pay as men for the same work.

They are usually not so strong as men.

Although _____

_____

Note See Appendix 1 for some words and phrases which writers use to show that they agree with a point but think that a contrasting point is more important.

Activity B

△●●

Which idea is the strongest?

Each of the sentences below has two ideas.

Read each sentence and decide which idea is the strongest. Tick the correct answer.

1. **Man can not only talk but he can also think.**
   (a) Man can talk.
   (b) He can think.

2. **Man can talk, think and, above all, make plans for the future.**
   (a) Man can make plans for the future.
   (b) He can talk and think.

3. **Man can talk, think and plan for the future. But most important is his power to destroy himself.**
   (a) Man can plan for the future and destroy himself.
   (b) He can destroy himself.

Activity D
○ ●●

Say what can logically follow

This activity will help you to understand contrasts as well as additions.

This is a step-by-step activity. At each step in the text there is a choice of ideas.

Complete the text by deciding which idea can follow each step. Tick the correct answers.

Step 1

Many people once thought that machines reduced the need for human skills. It was said that before the machine age the worker was highly skilled. Because a craftsman like a shoemaker, a tailor or a blacksmith made the whole product himself, he had to have a variety of skills. Moreover, . . .

(a) he set himself high standards of workmanship.

(b) he gained little pleasure from his work.

Step 2

After the arrival of machines, it was believed, the skills of the worker became useless. Machines performed the principal operations in making a product. The worker became machine-like himself. He did nothing but move a lever up and down or place a piece of metal in a machine and take it out again. And, what is more, . . .

(a) he became a skilled operator of a machine.

(b) he repeated this task all day long.

Step 3

Such work required no skill and so the worker became an unskilled labourer instead of . . .

(a) a factory worker.

(b) a craftsman.

Step 4

The truth is that before the age of the machine, skilled workers were only a very small proportion of the working population of most countries. The great majority of people worked on the land. In addition, the work was heavy, the hours were long and the pay was small. Machine industry, on the other hand, has increased the need for workers with special skills, training and knowledge. Indeed . . .

(a) machines now perform many of the skilled tasks that were previously performed by men.

(b) more people now require special skills than ever before.

Step 5

Furthermore, in modern factories, uninteresting, repetitive and mechanical jobs (like pushing a lever up and down all day) are disappearing because machines can do them instead. Not only has modern machine technology reduced the number of mechanical jobs, it has also . . .

(a) reduced the number of people employed in large productive organisations.

(b) created a great number of jobs requiring highly specialised skills or knowledge.

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Step 6

As well as engineers, machinists and mechanics, who design, operate, and repair the machines, modern industry requires people skilled in organizing and controlling factories, accountants to look after the finances, skilled salesmen, clerical workers, including stenographers, and typists. It also needs research workers, the total number of which has greatly increased in recent years. Thus, however true it may be that in the early days of the machine industry many skilled craftsmen lost their jobs, machine technology has increased the number and variety of skilled occupations. In fact, statistics tell us that since 1910 in the U.S.A., for example, the numbers of professional, skilled, and semi-skilled workers have risen rapidly, whereas the number of unskilled workers has . . .

(a) increased.

(b) remained about the same.

Lesson 30 Arriving At Main Points (1)

Materials

Student's Book: pp. 198–205.

Cross-references: Lessons 32 and 33.

General Aims

1. To help students recognize the ways in which writers indicate a special kind of contrast, the kind in which a writer makes a concession (agrees with an idea) but thinks that some other idea is more important.
2. To give students an opportunity to decide on the relative importance of ideas and then to express these ideas in such a way as to convey their relative importance.

Note that the first aim is traditionally called *making concessions*, and "concessions" almost inevitably lead to contrasting ideas which is the writer's main concern.

Activity A (10 minutes) — Which idea is most important for the writer?

Specific Aims

1. To give students practice in distinguishing main points from concessions.
2. To give students practice in expressing this form of contrast.

Procedure

Presentation

1. Do the first four items as class work, giving the students enough time to arrive at their own solutions. Step 1 (a) and (b) should demonstrate that there is no evidence for saying that one idea is more important than the other. Step 2 (a) and (b), in contrast, provide clear evidence that one of the ideas is more important for the writer than the other.
2. Ensure that the students identify the clues which indicate that the writer is making a concession and in so doing relegating one idea to relative unimportance and elevating the other to prominence.
3. Warn the students that the last idea in a sentence or a text is not always the most important (See Step 3 (a)).
4. Let the students do Step 3 on their own and get them to check their answers in pairs.
5. Check their answers in class.
6. Let the students do Step 4 on their own.

Feedback

In a class discussion check on Step 4. The students should have demonstrated a reasonable grasp of the rhetorical power of words and phrases like "although" and "it is true that". As a check, test their understanding of the use of "may" in a suitable context, e.g.

Abdullah may be slow . . . .

Answers

1. (a) (iii); (b) (iii).
2. (a) (ii); (b) (i).
3. (a) (i); (b) (ii).
4. Accept any reasonable answers.

Activity B
(10 minutes)

Which idea is the strongest?

Specific Aim

To familiarize students with the idea of reinforcement, i.e. the ways in which writers indicate importance and emphasis.

Procedure

Presentation

1. Use symbols to explain the idea of reinforcement, e.g. x + y, or x + y + z. Here underlining provides the necessary reinforcement. The question is, how do writers do it with words.
2. Conduct the activity as class work, allowing pairs to discuss and agree on answers.
3. Highlight, in paired work and follow-up class discussion, the ways in which writers signal importance and show emphasis.

Feedback

Paired and class work should indicate whether the main idea has been grasped.

Answers

1. (b) 2. (a) 3. (b)

*Activity D
(15 minutes)

Say what can logically follow

Specific Aims

1. To give students pratice in using the whole context to decide on particular meaning relationships.
2. To reinforce the notions of addition, contrast and reinforcement.

Procedure

Presentation

1. Arouse the students' interest in the topic. Discuss briefly their reaction to statements like the following:

   Machines kill traditional skills.
   Machines take the skill and pleasure out of work.
   Machines create unemployment.

   Encourage the students to give local examples.
2. Explain the purpose of the activity. Encourage the students to use the preceding context to make their decisions first, and then use the subsequent context as further evidence or confirmation.
3. Let them do the activity on their own and get them to discuss their answers in pairs.

Feedback

Check individual answers. During paired discussion ensure that the students state, discuss and agree on the evidence for their final decisions. Point out that what they read up to Step 3 was what many people thought, not what the writer thought. Draw their attention to the phrase "it was believed".

Answers

1. (a) 2. (b) 3. (b) 4. (b) 5. (b) 6. (b).

STRATEGIES FOR READING

Nesamalar Chitravelu

BACKGROUND AND RATIONALE

It is the general overall aim of UMESPP to improve the reading ability of the Malay-medium student so that the handicap he faces in his academic race with his English-medium counterpart is minimized. The preliminary surveys that the UMESPP team conducted in the form of questionnaires to students, academic staff and language teachers revealed that clearly the achievement of this end would be an uphill task. The students had a long history of failure in learning English effectively so that their language proficiency at entry point was very low. (See the report on Testing in this publication.) Motivation was correspondingly low. The English classes had to be conducted during term time and this meant that time was a scarce resource that had to be allocated between the competing ends of English on the one hand and their chosen subject on the other. The students invariably chose to spend their time on their subject. The dividends from spending their time on their subject were demonstrable. The dividends from attending English class were, at best, questionable. In the slow and laborious process of language acquisition, the quantity and quality of learning were often imperceptible for a very long time. Even with the best of intentions, the little bit of language a student picked up at each session could not be seen to make his efforts at gleaning information from his English textbooks any easier. Even with the best known methods of language teaching, given the students' starting level, their age, the little time they have to study English (4 hours per week, on the average) and their poor motivation, they would take all of three years to master the language well enough to read their textbooks and by this time most students would leave the university and their need to learn English would cease.

Clearly, we had to knock down the edifices on which our courses were traditionally based. It was no longer valid to assume that the students wanted to learn when they came to the courses conducted by the Language Centre, that it was English they came to learn, that learning English was useful and that all we needed to do was find the best ways of teaching English. We had to construct a new basis for our course from first principles. The student had to be motivated to learn and this meant that the course must not only be useful and interesting but also seen to be useful and interesting. The surrender value of what we teach must be immediate and demonstrable.

How then can we help these students to read effectively when they don't particularly want to do so? If we look at only the negative sides of the situation, as we have done so far, then our answer, of necessity, must be that

we don't. In fact, we can't. Fortunately for us and the students, there are positive sides too to this situation. The solution that *Strategies for Reading* offers to this problem is based on harnessing these more positive resources and putting them to work.

The brief to teach students how to read English textbooks is often interpreted as a brief to teach the English language. But it doesn't have to be interpreted in this way. In fact, it would be wrong to do so. What we need to teach the students is how to extract information from the textbooks, which, incidentally, happen to be in English. Admittedly, knowledge of English is an essential factor in decoding these texts but it is not the only factor. The books the students have to master use other vehicles besides English to communicate their meaning and these - graphs, tables, flowcharts etc - are language universals which are well within the understanding of a university student.

The Malay-medium student is linguistically weak and long past the age experts claim is ideal for language learning. But he is an adult with all the advantages of being an adult. He has experience of being a reader albeit a reader in another language. We believe that at least some reading strategies are universal and therefore transferable from reading in one language to reading in another language. The Malay-medium student has experience of using reasoning in order to come to terms with unknowns, even if these were unknowns in some other subject: Law, History, Science, Mathematics. We believe that the processes of learning are not in essence very different. Only the materials on which the operations are performed and a mental construct is formed vary. The skills learnt through studying their subject, therefore, can be harnessed in teaching them how to learn English.

Aims

Taking into account the variety of texts the students would have to read, what the students are required to do with and to the texts, and the negative and positive characteristics of the students for whom the course was to be prepared, the *Strategies for Reading* Unit came up with the following aims:

1 To expose students to as wide a variety as possible of the kinds of texts they are likely to meet in their study reading.

2 To set up situations to expose various aspects of the problems students normally face in their study reading so that they, together with the materials and the teacher, can look for ways of overcoming or living with the problem. (The selection of the problem situations to set up was primarily based on intuition and observation. The statistical data obtained from the Reading Attainment Test and the questionnaire merely helped to confirm and refine the intuitions.)

3 To help them develop an approximate system, an interlanguage, which would help them maximize the amount of information they can glean from a text while they laboriously and progressively build up their language proficiency as the course advances. In practical terms this has meant demonstrating to students how optimally they can use the resources at their disposal: their knowledge of subject matter, their understanding of language universals like graphs, tables etc, the natural reasoning they will bring to bear in reading academic texts in their L_1 but not in English because they associate all their difficulties in reading in this second language with linguistic difficulties.

4 To build the right mental attitudes that would help them accomplish aims 2 and 3 above successfully: to make them active participants in learning instead of passive recipients; to wean them out of their debilitating concern with unfamiliar words; to build up their self-confidence; to make them accept that making mistakes is natural, even necessary.

5 To help students 'catch the rhythm' of learning English by teaching them a limited set of strategies -using contextual clues, affixes etc - for negotiating meaning in a text. (This method of teaching students how to learn the language is preferred to the method of teaching actual items in the language because it appears to be far more generative and cost effective in terms of time spent in teaching it.)

Course Organisation

In its pilot version this unit consisted of the following books:

Students' Book	Phase 1
Course Book (Parts 1 & 2)	Phase 1
Teacher's Notes	Phase 1
Students' Book	Phases 2/3/4
Course Book	Phases 2/3/4
Teacher's Notes	Phases 2/3/4

Types of Material

The material for this Unit was of 4 types:

1 the one-hour lesson which contained all the main teaching points.

2 the half-hour workshop which contained additional material which required group work and class supervision.

3 the home assignment which either prepared for a coming lesson or reinforced a lesson already done. This differed from the workshop in that it did not require supervision or group interaction.

4 free supplementary material to be used at the teacher's discretion. This was only provided for Phase I.

Texts Used

A number of factors related to our perception of student needs and overall decisions regarding the design of the entire UMESPP course affected text selection.

1 In accordance with the aim of the Unit, texts selected for this Unit have the following features:

a They have been defined to include everything the student has at his disposal when he reads a book for study purposes:

i linear texts (different layouts of information as well as different genres).

ii non-linear texts (tables, graphs, diagrams etc).

iii references, tables of contents, indexes, text summaries, overviews, bibliographies etc.

b They have been kept authentic for the following reasons:

i It was felt that the arguments given in support of traditional simplification were spurious.

ii There was a credibility gap between being able to read a simplified text and believing that this would 'ultimately' help the student to read his academic texts which we felt our students would not accept.

iii If students were to be taught how to handle the kinds of difficulties they would face in their academic reading, then they had to face them in texts that resembled, and were likely to have, the same kinds of problems. The load of unfamiliarity has been controlled, however, through such means as the provision of non-linguistic supports which increase the redundancy in the text; the provision of partial outlines and information maps; annotation of main points in the margin; by activating previous knowledge of the subject matter of the English text and by presentation formats that increase the visibility of relevant interpretive aids.

c The cognitive level required in processing the text is lower than the linguistic level required so that explanation of the contents or argument of a text does not divert students and teachers from the intended pedagogic purpose of the lesson.

2 *Strategies for Reading* falls under the common core banner and this has had implications for the selection of texts for this Unit. The texts had to be chosen to be of interest to people across all disciplines. This proved a

difficult task. Texts from a discipline often had to be picked to be accessible and of general interest to the layman. This often meant that they ended up being boring to the student specialising in that discipline. We have circumvented this problem in basically three ways. We have tried to

a find texts that give new perspectives to old subjects so that even someone familiar with the subject will not be bored

b provide as wide a range of topics as possible so that even if people are bored with some topics the same people will not be bored all the time

c rely more on what the student has to do with the text than on the content of the text to motivate the students. This is why most of the operations to be done with the texts in this Unit are of a problem-solving nature.

Course Design

The materials in this Unit fall into 4 phases:

Phase 1

This set of 10 lessons resembled 'finger exercises'. Skills assumed to be basic to any intelligent reading of texts were taught in this phase. Ancillary skills like working in groups and supportive attitudes of self-reliance and acceptance of error were also built up here:

Lesson 1	Using contextual clues (linear texts)
Lesson 2	Extending the idea of context to include non-linear texts
Lesson 3	Deducing meanings of words/sentences through repeated acquaintance in more than 2 meaningful contexts
Lesson 4	Understanding morphological elements
Lessons 5 & 6	Seeing Sense Relationships 1 and 2
Lesson 7	When to use a dictionary and when not to
Lesson 8	Chunking
Part 1	Alternative realisations of the same basic information chunk.
Part 2	Dealing with ambiguity
Lesson 9	Assessing implications
Lesson 10	Making inferences and deciding on consistency.

Phase 2

The student is used to relying on the least of his strengths - his knowledge of English - as the only key to reading success. This set of 12 lessons was designed to extend the student's concept of his own resources to include those factors that he, as an adult learner who already knows how to read in another language, has at his disposal:

Lessons 1 & 2	Using knowledge of key words 1 and 2
Lessons 3 - 5	Using previous knowledge
Lesson 6	Matching linear and graphical texts
Lesson 7	Organizing information given in a variety of ways to fit a given purpose
Lessons 8 & 9	Using non-linear texts to understand difficult concepts
Lesson 10	Using knowledge of rhetorical structure
Lesson 11	Using text redundancy
Lesson 12	Using bibliographies, tables of contents, etc.

Phase 3

These lessons posed reading tasks as different kinds of problem-solving exercises. The focus of these lessons was not on individual skills but on the combination of skills for the solution of various reading problems set up in each lesson:

Lessons 1 & 2	Understanding the steps in problem-solving
Lesson 3	Decoding and using a systems approach to information layout
Lesson 4	Deciding on the relevance and usefulness of information, given some information gaps
Lesson 5	Working out problems, given all the information required
Lesson 6	Using analogues and examples as aids to solving problems
Lesson 7	Deciding where in a given framework bits of information fit
Lesson 8	Assessing the relevance of information to the strands of an argument.

Phase 4

In this phase a more complex orchestration of the skills acquired in the first phase and more macro-level strategies are required of the students.

Lesson 1	Classifying various places in the world according to a classification system outlined in the target text.
Lessons 2 & 3	Understanding features of information transfer from a study of rumour.
Lesson 4	Deciding on a reading plan for describing rural settlement in Malaysia given two classification systems and some topographic maps.
Lesson 5	Reviewing the plan adopted in Lesson 4.
Lesson 6	Deciding on the basis of a report on tigers whether tigers are likely to become extinct.
Lesson 7	Using the information gathered on the chances of survival of the tiger, to predict what factors are likely to be of importance in the survival of animals in general and of animals like leopards and pheasants in particular.

Methods

This Unit has as its basis the belief that learning is a very private thing that only the individual can do for himself, and that all 'pre-packaged' material and methodology can only be props based on some hypotheses about what facilitates learning in the 'average' student. It is felt that individual optimums can only be reached if accountability for learning success is shifted from the teacher to the student. The materials and methods of this Unit, therefore, were geared to transform the student from a diffident recipient into an active participant in the learning process. In practical terms this has meant that

1 A large proportion of class time was allotted to individual and group work because it was felt that this will force students into greater active involvement in the lesson and also capitalize on those teaching resources which fellow-students, because of shared interests, background and learning experiences, possess which professional teachers do not. This centrality of group work, to some extent, placed limits on provisions for individualisation and flexibility of individual pacing. This problem was somewhat circumvented, however, by insisting that students do whatever work is given to them individually first before moving on to group discussion; through home assignments and through differential parcelling out of group tasks to take account of different proficiency levels among members of a group.

2 Obvious teacher error was deliberately introduced into the lesson so that the student could begin to regard errors as 'normal' and necessary for learning.

3 Alternative answers and tentative answers to exercises were made an integral part of this Unit as this was felt to be the best way to make the student aware that meaning is not fixed but should be negotiated.

4 Since what was aimed at was receptivity to newness and a preparedness to tackle it with confidence, the priority was on getting the student to 'catch the rhythm of learning' rather than on teaching any particular set of skills or combination of skills thoroughly. Each skill or combination of skills has only been given explicit focus once or twice in this Unit because of exigencies of time. This, however, was not considered to be a major defect. Even though the permutations and combinations in which the skills of reading comprehension can occur are almost infinite, it was argued that the actual number of skills involved is not large. This means that all skills will be recycled again and again throughout the length of the course even though they are no longer the focus of any lesson. The opportunities for reinforcement of any or all of the skills will be latent throughout, since every reading task requires more than one skill at a time.

5 Almost all the lessons in this Unit are task-oriented. This was done to ensure that any deficiency in motivational appropriateness of the text can

be compensated for by the interest generated by what students are expected to do with the text. The tasks, especially in phases 2, 3 and 4, try as nearly as possible to simulate the kind of reading problems that students are likely to encounter in their study reading. It was hoped that in this way the artificiality of reading for the sake of doing reading comprehension exercises will be minimized.

6 The aims of each lesson were made explicit so that the student as an adult learner could be made jointly responsible with the teacher in making sure that the aims are achieved. If the aims are viable and seen to be worth pursuing this can be very highly motivating. Knowing the aim of the lesson, it was felt, should also provide the student with an in-built criterion of his own success in the day's lesson.

7 Most important of all, the teacher/student relationship is changed. The teacher's role is still crucial but not in the way it was before. The teacher is no longer the sole repository of knowledge and the uncontestable judge of rightness.The teacher, like the material, is essential only in the same way as infrastructure is necessary for economic development. The basic role of the teacher is to interpret and adapt the material so as to maximize individual and group learning. This generally implies that the teacher acts as a catalyst, a guide into how to do the exercises, an explainer of the purposes of the lessons, an arbitrator when deadlocks in argument occur, a stimulant when an activity refuses to take off the ground, a reviewer of student success, and, most important of all, a friend.

FINDINGS OF YEAR OF PILOT TESTING

Pilot testing of *Strategies for Reading* took the same forms as for other Units. Extensive data was collected from students and teachers through questionnaire and interviews. The materials were also trial taught by the writers. The findings of all these evaluation procedures are briefly summarized below.

The most valid criterion of a set of materials is the fact that a sufficient number of students using the material can behave in the way the stated terminal aims of the material say they should behave. The stated aim of *Strategies for Reading* is the transformation of the diffident, fumbling Malay-medium student into a confident reader at least as efficient in extracting information from English textbooks as his English-medium counterpart. Within the brief span of the year of pilot testing it was not possible to see that at least some of the students worked through the entire programme. The tight time schedules of the students did not allow this. However, it is still possible to say that the material is set along the right lines. There are several indications of this to be observed. Fewer words get picked as obstacles to learning as the course proceeds. This may be due to greater mastery of vocabulary or, more likely still, because the student is becoming more discriminating in the importance he attaches to 'knowing' the meaning of all the words in a text. In either case, the *Strategies for Reading* aim of freeing the student from his debilitating concern for words is being achieved. The Group sessions, which begin with little participation or domination of one or two more confident students, begin to increase in effectiveness as students become more 'at home' with this mode of learning how to read. Willingness to make mistakes, to ask for clarification, to 'guess' at meanings, to accept more than one answer, to stand up for one's answer against the once 'infallible' teacher, all point towards success.

Basically the evaluation data showed that the materials worked, but they also showed that some refinements in the original hypotheses on which the materials were based and some changes in the methods and texts used to realize the course aims were needed.

1 Insufficient provision had been made to take account of the students' previous learning experience and their own perceptions of what constitutes learning success and what they must do in order to achieve this success. It is a principle of *Strategies for Reading* that what is *in* a text is of secondary importance to what is taught *through* the text. Our principle of grading is based on the belief that text difficulty is a function of content (both language and subject matter) difficulty and task difficulty and we could control overall difficulty by holding our text difficulty constant and varying task difficulty alone. Both these principles clashed with student experience and expectations at the initial stages of the course. The students came from a school

system in which a text was taught as though it was an end in itself and everything in it had to be known. The text chosen for the first few lessons (and to a lesser extent, some of the later lessons) contained too many linguistic difficulties to be assimilable to students whose radar for spotting these difficulties and trying to find solutions to these difficulties is very keen indeed. This generated a feeling of failure instead of the intended feeling of self-confidence.

2 There was too much material for one year. Forty lessons had been prepared but the ten lessons of Phase I alone filled up one academic year's work.

3 Insufficient account had been taken of student variation and possibilities of recycling the material. There were only desultory attempts at additional material in the form of 'workshop' material and this was not sufficient to take account of individual variation and differing course specifications of different faculties within the university.

4 The aims and pedagogic devices used in some lessons proved not viable in practice.

REVISION

The above weaknesses in the Unit were taken care of in the following ways:

1 *Text difficulty* The principle of leaving in unfamiliar words in the text was not abandoned. However, text difficulty was adjusted to the level that students could assimilate at the juncture in the course at which the text occurs. Texts were not written specifically to make a linguistic or pedagogic point and they were rarely 'simplified' by the replacement of 'difficult' words with 'simpler' words and the breaking up of complex sentences into shorter sentences. However, if the features of a text were considered appropriate for the purpose for which it was originally selected, and the linguistic difficulties could be reduced considerably by one or two changes, these changes always took the form of increasing the redundancy in the text eg by adding in contextual clues or providing a complement to the linear text in the form of a non-linear text. A text was changed altogether if the difficulty made assimilation impossible or deviated student attention from the aims of the course to word-hunting. Student compulsion to learn words was accommodated through the provision of self-study vocabulary exercises at the end of each lesson.

2 *Excess material* It was clearly demonstrated that given their starting level, students could not be expected to reach their target levels in one year. Therefore the course was extended over two years instead of one.

3 *Individual variation and recycling* This was the defect of all Units in the course. The remedy adopted was to provide additional material in a more systematic way at the end of each lesson. (See paper on the materials in their final version.)

4 *Untenable aims and pedagogic devices* Different approaches were taken to solve this problem depending on the reasons as to why the aims and devices proved untenable. The main criteria we used and remedial action which followed are exemplified in the examples given below:

a In Lesson 3 Phase 2, Bahasa Malaysia texts were used to establish a common core of 'previous knowledge' for a lesson devised to demonstrate the fact that nothing they come across in their academic writing is absolutely new and that they could use what they knew of the subject from before in order to decode the 'new' information in the present text. This practice resembled the practice of translation in the school classroom so closely that, especially with poor students and with teachers who themselves practised the translation method before being given the UMESPP material to teach, the searching for one-to-one correspondences tended to threaten a blurring of lesson aims. This lesson was left out because the dangers of reinforcing negative carryovers from previous experience were sufficiently great to warrant such drastic action. Besides, other devices used for achieving the same purpose had also been tried out and these proved more successful.

b Lesson 4 of Phase I sought to sensitize students to the way affixes determine semantic and grammatical meaning in English. We used nonsense words in order to do this. The device proved successful with good students but poor and average students found the lesson difficult. Too many patterns of affixation were allowed into the texts and the degree of quaintness that the nonsense words imposed on the texts was too great for the students, who had still not had time to come to terms with the unfamiliar methods of the unit, although it would not be too difficult for the students later in the course. The assumption that it makes regarding the students' knowledge of affixes in real words too proved invalid. This lesson did not have to be omitted, however. It was moved from Lesson 4 in this Unit to Lesson 43 in the new integrated course. A new lesson was written to precede Lesson 43 and prepare for it. The number of patterns of affixation too were controlled in order to facilitate the formation of a clear mental construct of the kinds of word behaviour the lesson was intended to sensitize students to.

c Lesson 8 of Phase I was designed to sensitize students to clause analysis as a way of tackling the problems of difficult syntax. We

found in practice that the students' knowledge of clause structure was so poor that far more than one lesson was required to teach the skill. The amount of time it would take to enable the students to use this strategy effectively, we felt, was not commensurate with the payoff. The same time spent in practising other skills would produce greater dividends. The lesson, therefore, was dropped.

d Lesson 10 Phase I was designed to teach students different kinds of inferences they would be expected to make in reading academic texts. The aims were viable, the texts were of the right linguistic level and the questions on the texts articulated the aims of the lesson very well. Yet some of the texts had to be replaced. The fact that the Unit was designed to be used by students in all disciplines was overlooked and there was a preponderance of Science texts at the expense of Social Science and Arts texts. Some perfectly working science texts were therefore taken out and replaced by Social Science and Arts texts to cater for the mixed interests of our students.

CONCLUSION

Strategies for Reading is an experiment based on a strong intuition that most people like to do what they can do and do what they like to do all the better for liking it. The methods it employs in achieving its aims are based on intuitions whose objective validity has often not been and sometimes cannot be empirically proven. The theoretical pedagogic foundation on which *Strategies for Reading* is based is fraught with controversy. Yet, the evidence of the experiment in the classroom is encouraging. After all, this surely is what counts.

Lesson 11 Seeing Sense Relationships (2)

It is not always necessary to understand the long and difficult words and sentence patterns that are sometimes found in texts. In this lesson you will learn how to use key words and your own intelligence to arrive at the main ideas in a text.

Activity A △●●

Answer questions on main ideas

Here are three skeletal texts.

Read each text. Then use your understanding of the main ideas in the text to answer the questions that follow. Note down your answers.

Text A

_____ ____ _____ camera _____ similar ____ _____ ____ ____ human eye, _____ _____ _____ _____ _____ telephone _____ _____ human ear _____ ____ _____ eardrum, a _____ _____ ___ _____ _____ _____ metal called a diaphragm _____ _____ middle and inner ear _____ ____ _____ _____ a chamber of carbon grains _____ _____ _____ _____ _____ nerves ____ _____ ____ _____ _____ _____ _____ wires.

1 In what way is a camera similar to a telephone?
2 What does a telephone have in place of the human eardrum?
3 What does it have instead of the middle and inner earparts?
4 What does it have instead of nerves?
5 How do you think messages are carried in a telephone?

Materials

Student's Book: pp. 62–67.

Auxiliary material: Students' Book: Appendix 3 (pp. 414–415).

Cross-references: Lessons 8 and 10.

General Aim

To get students to see how key words and main ideas help in the understanding of the overall meaning and implications of a text.

Activity A (35 minutes)

Answer questions on main ideas

Specific Aims

1 To give students practice in using key words and main ideas to understand the overall meaning of a text.

2 To provide students with a technique for handling problems caused by difficult syntax.

Procedure

Text A (10 minutes)

Presentation

Text A is fairly simple and obvious. Work through it with the class and help the students to realize the importance of key words in deciphering a text. Follow the procedure set out below.

1 Put on the blackboard:

camera ..... eye
telephone ..... ear

Ask the students to make out how these two ideas are connected. Once the idea of a relationship between the object and the human organ is realized, the students should be able to see the other connections and you should be able to proceed with the other questions.

2 Point out that Question 5 requires them to make extensions from the information given. Ask the students which part of the ear sound strikes first. Quote this:

. . . eardrum, then . . . middle and inner ears . . . then . . . nerves.

Ask them to apply this to a telephone.

Feedback

Go through the answers with the class. Refer them to the complete text in the Student's Book p. 414.

Sample II

Student's Book

Lesson 22 Using a Dictionary

In several of the earlier lessons you learnt to deduce the meanings of words without a dictionary. You cannot always do without a dictionary, however. In this lesson you will learn how to decide when to look up a word in a dictionary. You will also learn how to decide which of the meanings given in the dictionary best fits the context you are dealing with.

Activity A △○●●●

Do you need a dictionary? (1)

Each text below is accompanied by a number of questions. The texts and the questions probably contain some words whose meanings you do not know.

Decide which words you need to know in order to answer the questions, and underline them.

Procedure for each text.

Step 1	Read Question 1.
Step 2	Read the text and answer the question.
Step 3	If you cannot answer the question, ask yourself why you cannot.
Step 4	If you think you cannot answer the questions because you do not know the meanings of certain words, note down these words. Note that some of these difficult words may occur even in the questions.
Step 5	Now look up the words you feel you ought to know in the dictionary.
Step 6	Try answering the question again;
Step 7	Repeat the process with every question on the text.
Step 8	Discuss your answers in your group.

Materials: Student's Book: pp. 142–149.
Cross-references: Lessons on contextual clues (8, 11, 20 and 21).

General Aims:

1. To teach students how to tackle unknown words.
2. To sensitize students to the principles involved in deciding whether or not to look up a word in a dictionary.
3. To give students further practice in using contextual clues.
4. To sensitize students to the principles involved in locating appropriate word meanings in a dictionary.

Activity A
(35 minutes)

Do you need a dictionary? (1)

Specific Aim

To give students practice in deciding whether or not to use a dictionary in the context of reading a text for particular purposes.

1 The format for this activity has been chosen for the following reasons:

(a) to make reading purposeful;
(b) to highlight the issue of relevance;
(c) to allow for individual variations in language proficiency
different words are unknown to different students;
students vary in their ability to use contextual clues, etc.

2 The student should therefore emerge from this lesson with a knowledge not of what words he needs to look up but of what issues he needs to bear in mind in deciding whether or not he should look up a word in a dictionary:

(a) Is the meaning of the unknown word *relevant* to my needs?
(b) If it is *relevant*, is it *necessary*, ie can I get the same information from other words in the text?
(c) Is a *generic* meaning enough or do I need the *precise* meaning of the word, ie how much guessing can I get away with?
(d) How can I arrive at the meaning of the word without having to look it up in a dictionary?

Make sure you keep all these points in mind as you handle the lesson.

The Major Processes of an Economic System

Four major processes cover the activities of people in any economic system: the primary raw material industries, manufacturing, distribution, and the service industries. First there is the process that provides the raw materials needed in a modern economy: the minerals and fuels; the grains and other vegetable and animal food products; wool, cotton, flax, and other fibres; lumber; stone, sand and clay; leather, hides, and skin and like commodities. This is the work of enterprises engaged in agriculture, mining, lumbering, hunting, and fishing – often called the extractive, or primary industries.

Yes	No	
☐	☐	(a) Is a fibre a kind of raw material?
☐	☐	(b) Is silk a kind of fibre?
☐	☐	(c) Is lumber another name for fibre?
☐	☐	(d) Is lumbering an extractive industry?
☐	☐	(e) Is cutting down trees an extractive industry?

Procedure

Presentation

1 Get the students to work through the text on sticklebacks and its questions first individually and then in pairs or groups.

2 After about 15 minutes, conduct a class discussion on the answers. Concentrate on the manner in which they arrived at their answers rather than the correctness of the answers. The students should become aware that although they should all have the same answers in the end, they are not likely to be equally dependent on a dictionary. Adopt the following procedure to get this idea across.

(a) Get the students to help you to list all the clues which helped them to answer, say, questions 1 and 2.

(b) Then ask individual students whether they had to look up words and, if they had to, which words.

(c) Match these words against the words listed as clues on the blackboard.

(d) Get the students to suggest any other words which could have given the meanings of the clue words which some students did not know. In this way, they will discover whether or not they were efficient in resorting to a dictionary.

3 Let the students work through the next three texts and questions first individually and then in groups.

Feedback

Check on group discussions. After about 15 minutes, conduct a class discussion (as in item 2 above), on the four texts.

Lesson 52 Using Non-Linear Texts as Props (1)

In this lesson and the next you will get an opportunity to use tables and flow charts to simplify difficult words and concepts which occur in the accompanying linear text.

Activity A ○●●

Fit information into a table

Here is a list of phrases and an incomplete table.

Fit the information in the list into the appropraite places in the table.

air and noise pollution
heart and kidney transplant operations
increased yield per acre
physical and emotional disturbance
saves labour
super oil tankers
drugs like morphine
double cropping
business
scooters
computers
prolong life
bring unemployment
kill pain

Table A. Effects of selected innovations

Sectors	Innovations	Desired Effects	Side-Effects (unwanted/unexpected
Health	Antibiotics	Control of infections	Development of resistant strains of bacteria
Agriculture	Cheap artificial fertilisers	Increased crop yield	Pollution of rivers and lakes
Housing	High-rise flats	High densities	Loneliness; vandalism; community breakup; family problems, etc.
Energy	Nuclear power (fission)	Long-term energy supply	Risks of radiation from system faults, leakage of stored wastes, etc.
Transport	'Juggernaut' lorries	Reduced haulage costs	Congestion on narrow roads and in towns. Noise

Lesson 52 Using Non-Linear Texts as Props (1)

Materials

Student's Book: pp. 337–342.
Auxiliary Material: Appendix 12 (pp. 436–440).
Cross-references: Lessons 51 and 53.

General Aim

To enable students to use the intelligence and knowledge they possess to extract information from tables in particular, and non-linear texts in general. Specifically, to show them.

(a) how broad general conclusions (macro-level understanding) can be drawn from information in a table even though many of the words and expressions used are unfamiliar.

(b) how to use the tabular form of presentation, eg to guess at meanings of words, eg "innovation", "side-effects", "antibiotics".

(c) how to use information in a table to find out the meanings of difficult words and concepts in the main body of the text, eg "widespread:" "vicious circle".

The general intention of this lesson is to equip students with the skill of extracting information and meaning from tables (and other forms of non-linear texts) and in this way to render difficult linear texts comprehensible. The tables used here have many words students are not likely to know but there are enough familiar words to enable them to extract the main points. This is the first of two lessons on the use of non-lear texts as props. Study them both before you get the students to work on this lesson.

The difficult linear text that accompanies the non-linear texts given in this lesson and the next may be found in Appendix 12 (pp. 438–440) and is to be used at the end of Lesson 53 to demonstrate to students the effectiveness of the methods of simplification taught in these two lessons.

52

Activity A
(10 minutes)

Fit information into a table

Specific Aims

1 To provide students with more examples of innovations, effects, side-effects and sectors so that those who have not understood the examples given in the table can make out what these words mean.

2 To bring to the notice of students the broad categories and general organization of the table by forcing them to fit new data into the existing scheme.

Procedure

Presentation

1 Get the students to fill the first three items into the table individually and then conduct a class discussion. Get different students to explain how they arrive at their decisions.

2 When you feel they have understood what is expected of them, leave them to work in pairs on the remaining items. Give brief working definitions (translations, if necessary) for words the students do not know.

Feedback

Conduct a brief class discussion at the end of the activity. Point out the layout features they could have used in deciding where to fit each item. It is not important for the students to fill in all the given examples. The activity will have achieved its purpose if the students show that they understand the overall information structure of the table.

Answers

Accept all reasonable answers.

READING PROJECTS : SCIENCE

Liew Sau Pheng

Introduction

READING PROJECTS: SCIENCE is the first of a series of specialist components in the reading course designed for UMESPP. It provides the functional setting for the practice of the skills and strategies of reading taught in the main reading course. Basically this component develops the study skills the students require to extract and organize information from tertiary level science textbooks. It also incorporates the teaching of reference skills to provide the foundation and training the students need to pursue advanced courses of study independently and effectively.

The Pilot Materials

The pilot edition of the UMESPP programme entitled *Reading for Learning* was published and ready for the academic session of June 1977/78. *Reading Projects : Science* was Unit 3 of this pilot edition which comprised four Units. The Unit consisted of the following books: the *Students' Book*, the *Course Book* (which provided an answer key), *Teacher's Notes*, and finally the recommended textbooks, which were kept in the Resource Room.The *Students' Book* contained all the learning materials for the course while the *Course Book* was only handed out to the students to check on answers after they had compared and discussed answers with one another. The *Teacher's Notes* provided guidelines on using the course. At the back of the book an appendix of checklists (the checklist of study skills, the checklist of notions and the checklist of forms of presentation used in the design of the Unit) was provided for the teacher's reference.

Unit 3: Reading Projects : Science was divided into four phases and was represented by one teaching hour per week making a total of 37 lessons. Phase 1 introduced the students to the most basic study skills that students were assumed to have learnt, but which student performance on the pre-pilot run had proved they had not. In this phase, emphasis was also given to teaching the students to use the Library of Congress Classification System. A library questionnaire was provided at the back of the *Students' Book* to reinforce the library orientation programme which was scheduled for the third week of the first term. The lessons in this phase were

Lesson 1	How to locate a book on the shelf.
Lesson 2	Using the library catalogue.
Lesson 3	Library orientation programme.

Lesson 4	The basic organisation of a textbook.
Lesson 5	Using the index and the glossary.
Lesson 6	Scanning.
Lesson 7	Skimming.
Lesson 8	Notetaking.

The lessons for Phase 2 formed the core of the Unit and were aimed at providing the students with rigorous training in the skills of reference and presentation as well as at developing the students' ability to read and follow written instructions accurately. An integrative use of these skills culminated in a reading project in Phase 3. The lessons in this phase were designed to give regular coverage of the three main science subjects, chemistry, biology and physics, which were taught to the pre-science students at the Faculty of Science. There were some students who took geology in place of either chemistry, physics or biology. Therefore each Phase 2 lesson contained three different activities, one each for physics, chemistry and biology, and occasionally a geology topic was used. Topics from the different science subjects were selected in consultation with science subject specialists. These topics were arranged in three sections, Sections A, B and C, as shown in the table below and on the next page. Each topic was to last for 10-15 minutes, but a list of those topics which took longer than 15 minutes was given in the *Teacher's Notes* and the teacher was advised to select only two of such topics to make up a lesson. It was not recommended that the teacher follow strictly the order in which the topics were printed. Such an arrangement was to enable the teacher to make modifications easily if and when a need arose to keep 'in step with' specialist subject teaching.

	Section A		Section B		Section C
1	Rice	1	a Cell structure - Animal	1	a Measurement 1
			b Cell Structure - Plant		b Derived Units 1
					c Electricity & Magnetism
2	a States of Matter	2	a Animals & Plant Kingdom	2	a Scientific Problems
	b The Halogens		b Insects		b Problems 1
	c Metals		c Arachnida or Insecta?		c Irrelevant Information

3	a Rock Classification b Igneous Rocks c Sedimentary Rocks d Metamorphic Rocks	3	a Feet of Birds b Beaks & Food Habits	3	Ohm's Law - Revision
4	Monocotyledons & Dicotyledons	4	a Pond Ecosystem b Food Chains, Food Web & Trophic Levels	4	Simple Circuits
		5	a Mendel's Experiments b Blood Groups	5	An Enclosed Seed

Organization of Topics in Phase 2 of Pilot Edition

There were two parts to each lesson - theory and practice, which were taught on alternate weeks. The following was given as an example of how a lesson was to be organized:

THEORY		PRACTICAL	
Section A	**Activity**	**Section A**	**Activity**
States of Matter	Reference work to complete given text	Same topic	Filling information gaps and table
Section B		**Section B**	
Cell Structure	Reference work to complete given text	Same topic	Labelling an animal cell
Section C		**Section C**	
Measurement	Reference work to complete given text	Same topic	Summarizing text into a table

Organization of a Phase 2 lesson

The aim of Phase 3 was to provide the opportunity for the synthesis and coordination of the various study skills previously taught. The students were to spend a whole lesson on a guided reading project, using references and forms of presentation relevant to the subject matter. The students were allowed to work either individually or in groups. If a student found the exercises simple he could opt for Phase 4 where he could carry out unguided research on a topic of his choice. The following topics formed the basis of the ten lessons in Phase 3. Although the sequence of the topics was not fixed the lessons were designed to be progressively more difficult in content and skill.

List of Topics

Biology :	The Food We Eat
	Behaviour
	Immunity and the Immune Response
	Nucleic Acids - The DNA/RNA Breakdown
	Special Relationships Among Organisms
Geology :	Limestone Areas in the Kinta Valley, Perak
	General Geology of the Kinta Valley, Perak
	Earthquakes
	Volcanoes
Physics :	Resistors, Resistivity and Superconductivity

Chemistry topics were omitted because it was pointed out that these might interfere with specialist teaching.

Phase 4 represented the culmination of this component where the students were expected to be able to select any topic and carry out the following tasks independently:

1 Select a topic and analyse it.

2 Research it using university level texts and compile the bibliography for it.

3 Organize the information.

4 Present the information as appropriate eg in the form of notes, continuous prose, diagrams, tables, charts etc.

This phase, however, did not feature in the *Students' Book* as it was not envisaged that many students would reach this level of skill. But instructions and suggestions regarding the teaching of this phase were given in the *Teacher's Notes.*

Reception in the Pilot Year by Students and Teachers

Target Population

The original UMESPP plan was a one-year course for first-year undergraduates but, when the materials were ready, the main target became the first-year pre-university science students (post-sixth-formers doing a one-year pre-University intensive course) and later it was extended to second-year pre-University science students (post-fifth-formers doing two years of a pre-University intensive course). Subsequently, the main experimental pilot teaching was carried out with the following sets of students:

1 The pre-science students - the post-sixth-formers on a one-year pre-University course run on a term system at the Faculty of Science.

2 The students at the Centre for Foundation Studies in Science known as Pusat Asasi Sains (PAS) in Malay who were also pre-science students - in this case post-fifth-formers on a four-semester course of studies run at the Centre. *(1)

Both the above-mentioned groups of students were taught all the phases of all the units.

3 First-year undergraduates of the Faculty of Economics and Administration who were taught all the phases of all the units except *Reading Projects: Science.*

The rest of this paper will concern itself with the pilot teaching of *Reading Projects: Science* to the first two sets of students.

Pre-Science Students

In the Faculty of Science only second and third year undergraduates were required by University regulations to take the Special English Course*(2) offered by the Language Centre. Neither the pre-science students nor the first-year undergraduates were required to do so as they would only embark on an English Course in the second year of their academic study in the University. The pre-science students, however, were included in the pilot teaching experiment for the purpose of assessing *Reading Projects: Science.* The number of Malay-medium first-year undergraduates in the Science Faculty was insufficient for this purpose.

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*(1) The acronym PAS will be used in all future references to this Centre.

*(2) Not the UMESPP Course.

The pilot teaching started off with 54 such students forming three groups of 18 students each. The feedback*(3) for Phase 1 from this set of students was good. The overall feeling was that the Phase 1 had useful skills to impart. It was found, however, that there were insufficient materials in each Phase 1 lesson to last the 50 minutes per lesson arrangement. Although the skills taught were new to many students, there were some who felt that the lessons were too easy for them. The pilot teaching of Phase 1 went smoothly for the first term, but in the second term these students became aware that the course was not compulsory and absenteeism became rampant. By the middle of the second term the size of each group of students had dwindled to only a handful. The groups became unstable with fresh students turning up for different lessons. As a result, the teachers found it impossible to obtain any adequate feedback from the students and vice versa. Finally it was decided to cease the teaching of Units 1, 2 and 4 in order that all the lessons in Phases 2 and 3 could be covered and evaluated. Phase 1 was the only part of this Unit for which thorough feedback was obtained. Lessons in Phases 2 and 3 had to be divided up among different groups of students and these were handled by different teachers. Nevertheless, we did manage to receive some feedback which informed us that the majority of these students enjoyed the lessons and found them useful. But the weaker students seemed to experience some degree of difficulty with many of the texts in Phase 2 and most of the lessons in Phase 3.

PAS Students

In contrast to the first set of students from the Faculty of Science, the students from PAS posed fewer problems. There was a total of 80 students forming 4 groups of 20 students each. They were a highly motivated group because in PAS a pass in English is compulsory for an overall pass in the students' study course. Attendance for all English lessons conducted was regular and there was adequate and sufficient feedback from teacher to students and vice versa. Phase 1 of *Reading Projects: Science* was taught to all the students at PAS and favourable feedback was received. The majority of the students were of the opinion that this unit familiarized them with important and useful skills such as using the library catalogue and learning about the organization of a book to facilitate their search for information. The teaching of Phase 1 was completed in Semester 1 after which it was phased out of the UMESPP course for the PAS students.

The teaching of Phases 2 and 3, however, was resumed in Semester 3 because *Reading Projects: Science* was originally designed for a group of students who would be the equivalent of Semesters 3 and 4 students in PAS. The following groups of students received instruction in Phases 2 and 3 in the third and fourth semesters:

*(3) The method of feedback for *Reading Projects* was the same as that used for the rest of the UMESPP programme.

1 Post-fifth-form students who had been following Units 1, 2 and 4 of the UMESPP course *Reading for Learning* and had completed Phase 1 of *Reading Projects : Science*. These were mainly Malay-medium students, but there was a small number of English-medium students who had not been exempted from the English course.

2 Post-fifth-form English-medium students who had been exempted from the main programme, ie *Reading for Meaning*, *Strategies for Reading* and *Spoken Interaction* (Units 1, 2 and 4), but who would now follow only Phases 2 and 3 of Unit 3: *Reading Projects : Science*.

3 Post-sixth-form students (of the pre-science one-year intensive category) mainly Malay-medium who had joined PAS in Semester 3 as Direct Entry students (see Appendix 1 for notes on the two levels of admission into PAS). This group had the smallest number of students compared to Groups 1 and 2.

For Phases 2 and 3 of *Reading Projects : Science*, however, feedback had to be carried out on an informal basis through discussions with the teachers and the students because by this time the UMESPP evaluation proper had already been completed. This feedback proved helpful for it pinpointed other areas of the pilot edition where revision would be beneficial.

We learned from this feedback that the students of Groups 1 and 2 (mentioned above) found that the texts in the core sections of *Reading Projects: Science* too easy for them. On investigation, it was discovered that lectures at PAS were way in advance of the concepts covered in the text But since the materials had been designed for the Malay-medium students it was not at all surprising that the English-medium students found them easy. There were, however, some Group 1 students who experienced difficulty with parts of the core sections because they claimed that the vocabulary was difficult. From our observations and teaching experience with these students from PAS, we found that the majority of the Malay-medium students from Group 1 were, on the whole, of a better quality and highly motivated. They had also received two semesters of intensive science accompanied by the UMESPP English course. Apparently they had improved in their English and, as a result, found the texts and tasks of *Reading Projects : Science* relatively easy. In fact, the Group 3 students who were closest to the pre-science category students - the main target population - experienced the most difficulty and for them the Unit was pitched at about the right level. Nevertheless PAS administration did admit that the Groups 1 and 2 students were mainly from an urban lower middle, and middle class background while the Group 3 students, like the pre-science category, were mainly from a rural and disadvantaged background. From our experience with all the three groups, we had found that the Group 1 students were, on the whole, extremely eager to try out novel approaches to language learning. Furthermore, being post-fifth-formers, they were appreciative of

the fact that they were being initiated into an academic type of learning via the medium of English. As a result they were well-motivated with a greater capacity to cope with learning in another language.

The general complaint from teachers was that the information gap-filling activities which formed the central feature of Phase 2 lessons were restricted in range. Some of these teachers felt that the activities themselves were repetitive and unchallenging and many students had said that they could complete the gaps without recourse to the references that were given in the margin. Teacher feedback also highlighted the main weakness of the pilot edition of this Unit. It was pointed out that the lessons in the core sections lacked sufficient linguistic focus and did not present an adequate progression of skills to be developed. There was also a consensus of opinion that a mismatch existed between design and reality in the pilot edition of *Reading Projects : Science*. Although the expressed aim was to harness the content of science to teach data processing skills. this aim did not appear to have been fully realized in the materials. Moreover, the teachers also found that the constraint of time, ie a maximum of three topics and a minimum of two topics within a 50-minute lesson, was not practical. There were many students who managed to complete one topic only. As a result the teachers found that they were unable to give any introduction as the writer had advised in the *Teacher's Notes* because different students were working on different combinations of topics in a single lesson.

But *Reading Projects : Science* did, however, succeed in Phase 1 because that was skill-oriented. By the end of that phase, the teachers observed that students had been weaned away from their habit of browsing through texts with no clear purpose in mind. They had learnt the usefulness of skimming and scanning the table of contents, the index, chapter headings. paragraph headings etc to facilitate their search for information and in doing so economised on time and effort. From interviews with students we are confident that students who have been exposed to the core sections of *Reading Projects : Science* have overcome their phobia of having to work with 'so many books and references' (as they put it). Phases 2 and 3 did, to some extent, provide the students with the crucial orientation to the academic mode of learning.

It was also pointed out that there was an imbalance of study areas in *Reading Proects : Science*. Students in PAS were generally more willing to work with topics in any subject areas but some of the students of the pre-science one-year intensive category resented the inclusion of topics on Geology because it was not one of their study subjects.

The feedback received further pinpointed the need to bridge the gap between Phases 3 and 4 if the majority of students were to be brought to the stage where they would be capable of conducting independent research in the library. In short Phases 2 and 3 should teach precisely those skills

which would enable the students to cope with a reading project that involved selecting a topic, analysing it, researching it, compiling bibliographical data, organizing information and finally presenting the information appropriately.

The feedback which touched on the problem of conceptual level highlighted the immense difficulty of mounting a subject-specific programme unless the following two conditions were fulfilled:

1 Integration between subject and language teaching

and/or

2 The ESP specialist focus on skills - linguistic (broadly conceived) and study skills - rather than content.

The evaluation by the English-medium students and the better Malay-medium students proved extremely valuable as it convinced us that the pilot edition of *Reading Projects : Science* materials had not succeeded in developing the relevant study skills. The content of the texts was intended to be within their grasp and the difficulties of each activity were to be manipulated according to focus, viz complex activities were to be carried out on easy content and vice versa. But it was found that much of the content and activities in Phases 2 and 3 did not conform to this design. As a result of this informal feedback and the previous feedback from the pilot run, *Reading Projects : Science* underwent a complete overhaul.

The Final Version

The final version of *Reading Projects : Science* has adopted the format and methodology of the main course. It introduces a multi-dimensional approach which stresses group interaction and peer cooperation in contrast to the learning mode of the pilot version which has been mainly self-access and individualized study. There is no carry over of lessons as in the pilot version and each lesson of the final version is a complete lesson in itself. There is a more systematic recycling of skills. Skills taught in the early stages are constantly being reinforced by later lessons. As far as possible the skills that are difficult are reinforced by several activities.

Both sequencing and grading were randomly carried out in the preparation of materials for the pilot edition. In the final version they are systematically built into the materials. Tasks now move from the easy to the complex in all parts. This has always been our aim but in the first materials production workshop it was difficult to keep to this principle because several people were involved in writing. Although detailed briefs were given to each writing assistant the workshop time of six weeks was hardly sufficient for looking into the finer points of material production.

Reading Projects : Science

The organization chart of the final version of *Reading Projects : Science* is given on the next page. The component is divided into four parts. Part 1 comprises the basic study skills. Its aim is to enable students to make optimum use of such universal reader aids as bibliographies, tables of content. tables, graphs, flowcharts and flow diagrams to facilitate their reading of scientific texts. Language teaching in the context of specific disciplines, as we see it, includes all the vehicles of meaning used for the communicating of its content. The early part of the component contains lessons which enable the students to revise the common abbreviations, symbols, equations and word parts. Subsequent lessons focus on the essential features of organization and display of information to facilitate the students' understanding of what they read and to enable them to use this understanding to structure the information for maximum storage or retrieval. The students are also given the opportunity to practise using their understanding of non-linear aids to decode language characteristically associated with such aids. A good example of a Part 1 lesson is Lesson 5 which is entitled *Learning about Graphs.* (See Appendix 2.) In the last five lessons the students practise locating appropriate sources of information on a topic and following up cross-references. For this purpose the students are trained to distinguish between various reading materials listed in bibliographies and to decide on their appropriateness as shown in the following activity given below. This is taken from lesson 11. In addition, they are trained to make effective use of the tools of reference provided by writers of textbooks viz. index, table of contents, glossary, cross-references etc.

Activity D
●●

Choose the appropriate reference

Here is a bibliography on polymerization.

Decide which of the publications in the list are likely to give you (a) a brief introduction to the subject; (b) an account of current developments in the field; (c) an historical perspective on the subject; (d) the opinions of several writers on the subject. Note down your answers.

1 Billmeyer, F. W. *Textbook of Polymer Science*. New York: John Willey and Sons, 1962.

2 *The Condensed Chemical Dictionary.*

3 *Encyclopaedia Britannica.*

4 *International Encyclopaedia of Science.*

5 Lappert. M. F., and Leigh. G. J., ed., *Developments in Inorganic Polymer Chemistry.* New York: American Elsevier Publishing Co., 1962.

6 Mandelkern, Leo. *An Introduction to Macromolecules*. New York: Springer-Verlag, 1972.

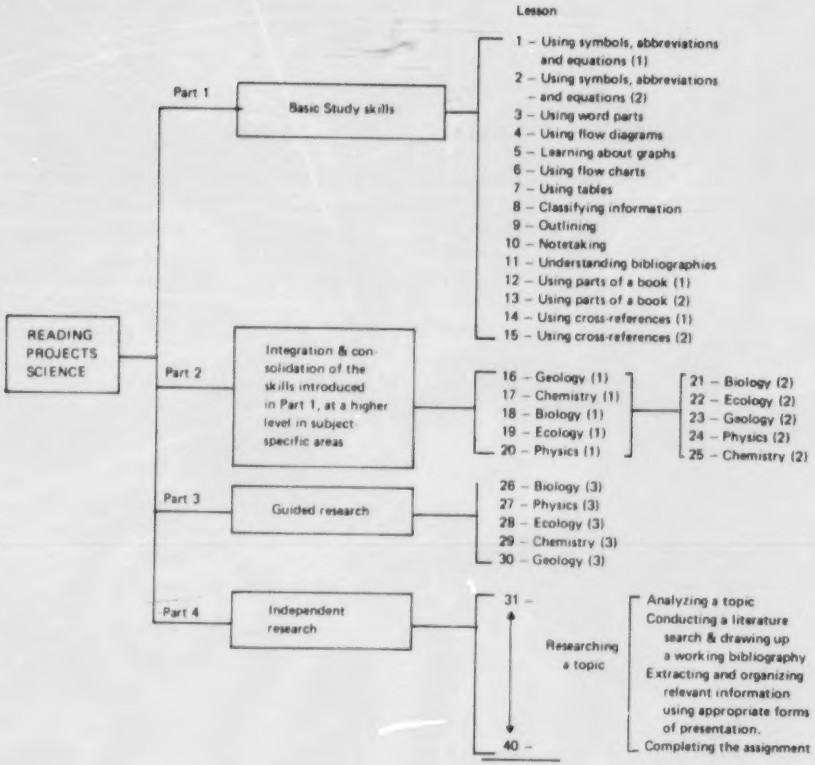
7 Mark, H. F. *"The Nature of Polymeric Materials."* Scientific American, September 1967, p. 149.

8 Morton, Maurice. *"Polymers Ten Years Later."* Chemistry, October 1974, pp. 11–14.

9 Slabaugh, H. W., and Parsons, T. D. *General Chemistry.* New York: Wiley and Sons Inc., 1971.

10 Stille, J. K. *Introduction to Polymer Chemistry.* New York: John Wiley and Sons, 1962.

11 Wasserman, Leonard G. *Chemistry: Basic Concepts and Contemporary Applications.* Belmont, California: Wadsworth Publishing Company Inc., 1974.


Lesson
READING PROJECTS SCIENCE
Part 1
Basic Study skills
1 – Using symbols, abbreviations and equations (1)
2 – Using symbols, abbreviations – and equations (2)
3 – Using word parts
4 – Using flow diagrams
5 – Learning about graphs
6 – Using flow charts
7 – Using tables
8 – Classifying information
9 – Outlining
10 – Notetaking
11 – Understanding bibliographies
12 – Using parts of a book (1)
13 – Using parts of a book (2)
14 – Using cross-references (1)
15 – Using cross-references (2)
Part 2
Integration & consolidation of the skills introduced in Part 1, at a higher level in subject-specific areas
16 – Geology (1)
17 – Chemistry (1)
18 – Biology (1)
19 – Ecology (1)
20 – Physics (1)
21 – Biology (2)
22 – Ecology (2)
23 – Geology (2)
24 – Physics (2)
25 – Chemistry (2)
Part 3
Guided research
26 – Biology (3)
27 – Physics (3)
28 – Ecology (3)
29 – Chemistry (3)
30 – Geology (3)
Part 4
Independent research
31 –
40 –
Researching a topic
Analyzing a topic
Conducting a literature search & drawing up a working bibliography
Extracting and organizing relevant information using appropriate forms of presentation.
Completing the assignment

Organization of *Reading Projects: Science*

In Part 2 the skills previously taught are integrated and consolidated. Although the skills required for academic study are the same for all disciplines, the underlying principle of Part 2 is that special permutations of skills are subject-specific. As such the skills here are brought closer to the students' actual reading and they are practised in some of the infinite number of permutations and combinations that are likely to be needed in their study reading. As the aim of this component is to orientate the students to reading academic science textbooks in Eglish, an attempt has been made to select topics, forms of presentation and genres of writing that may be considered a representative sampling of scientific texts in general. In the selection of extracts for activities within a lesson an attempt has also been made to pick those topics, genres of writing and forms of information display that are peculiar to that area of science. And science for that purpose has been divided into five broad areas - biology, chemistry, ecology, geology and physics. Two lessons are devoted to topics from each of these areas. The activities in Part 2 deal with isolated stages in the research process. Activity C of Lesson 24 which is given below exemplifies the type of activities available in Part 2.

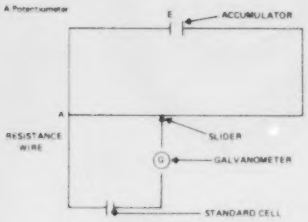
Activity C Solve the problem

Here is a problem.

Study the problem carefully and then consult suitable textbooks to find a solution.

Problem:

To obtain an accurate point of balance on a potentiometer, a very sensitive galanometer is needed. Such a galvanometer, however, is easily damaged if contact is made on the wire AB far from the balance point. What can be done to protect the galvanometer?



Part 3 structures the environment for the thinking through of a problem or task with some teacher assistance. The same divisions of subjects - biology, chemistry, ecology, geology, and physics - is maintained. A research topic is given at the beginning of each lesson. In each activity within the lesson, various stages in the thinking through and execution of a study task or problem are simulated. The activities of each lesson are interrelated because they are various stages in the process of solving a problem or a given task. The following activity taken from Lesson 28 of Part 3 is a good illustration.

A population study was conducted on the population of owls and rats in a specific geographical area. The zoologist carrying out the study noticed a great decrease in the numbers of rats during the period of study. He had, earlier on, observed that adult owls normally fed on these rats. However, when the numbers of rats decreased, the adult owl population, approximately fourteen, remained the same. The number of newly hatched owls, however, was found to be greatly reduced by comparison with earlier counts that the zoologist had made.

Problem:

Growth form, population density, natality and mortality are some important factors that determine the size of a population. Which of these factors do you think might explain the fact that the reduced food supply resulted only in fewer baby owls, but caused no reduction in the number of adult owls?

Activity A Decide which questions are relevant

Here are six questions. A choice of answers is provided for the last three questions.

Choose the relevant questions and then put them in the order in which you will go about answering them. Then answer Questions 3, 4 and 6.

1 You don't know what the terms mean. Where would you look them up?

2 Can you guess which of the factors mentioned is/are likely to apply?

3 What books would be likely to give you the information you need in the way you want it: an ecology book, a

biology book, a botany book, a general science book or a general dictionary, a dictionary of scientific terms, a dictionary of ecological terms?

4 You know the meaning of the terms. What else would you need to know?

a the feeding habits of owls?

b the feeding habits of rats?

c the kind of environments rats and owls inhabit?

d what other food owls eat besides rats?

5 If you wished to get a comprehensive view of the subject, which topic would you look up in an index?

6 Which of the following would you have to explain?

a why the rat population decreased.

b why the adult owl population did not decline.

c why the number of baby owls which probably didn't directly feed on rats declined though the number of adults which fed on rats did not.

d what the relationship between baby owls and rats is.

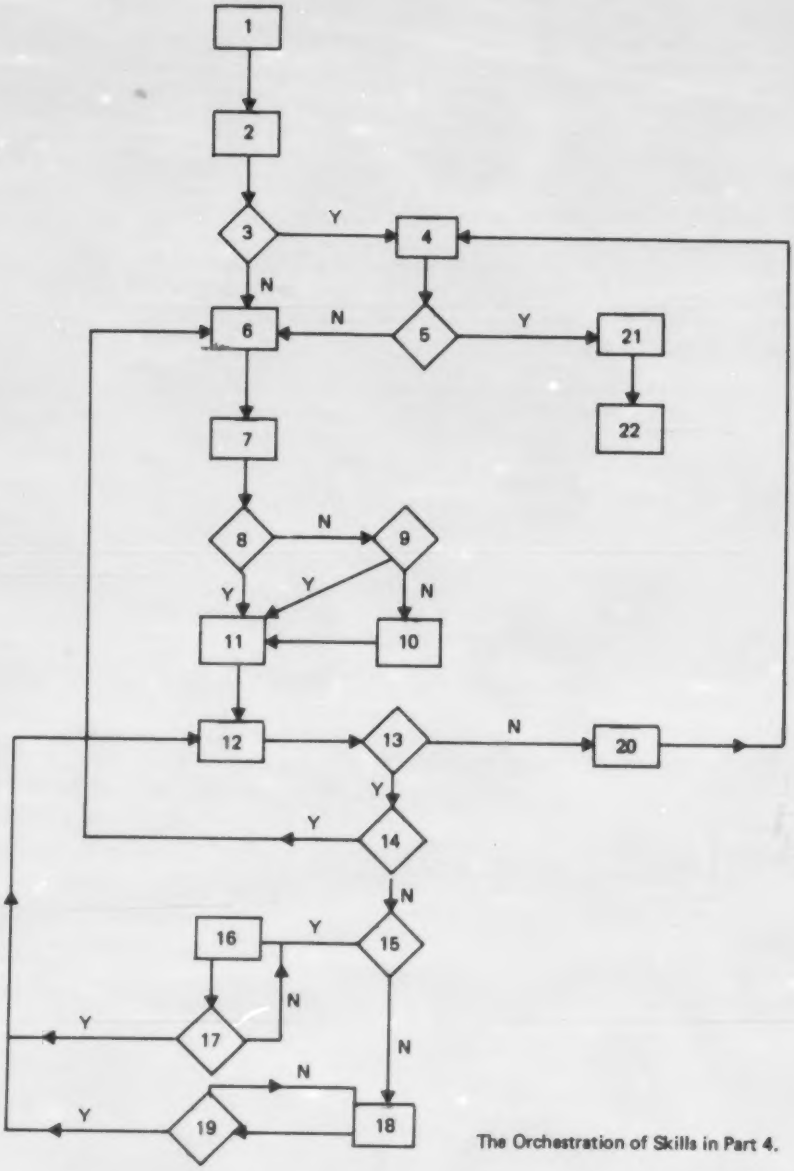
e what the relationship between baby owls and adult owls is in terms of population.

Phase 4 of the pilot edition has finally materialized as Part 4 of the final version. It is the culmination of this component of the course where the students are required to orchestrate the skills previously developed in the accomplishment of an independent piece of research with a minimum of teacher assistance. The lessons in this part are merely a recommended list of ten topics. These topics are intended as suggestions and may be replaced or extended at the discretion of the teacher. Some tips on how the 'lesson' may be conducted and the information displays that may be expected for each research topic are given. The flow chart on page 25 and its accompanying flow sheet on page 26 show how the skills taught in Parts 1, 2 and 3 are finally orchestrated in a single project.

The *Course Manual* of *Reading Projects : Science* underwent an important change in the final version. The general aims for each lesson and the specific aims of each activity are now spelt out clearly. This enables the teachers to see at a glance what the lesson and each component activity entail so as to make adequate and effective preparation for teaching. As the level of unfamiliarity is greater in this component than in the main programme, explanations for answers are provided and wherever areas of difficulty are anticipated, additional information is also given to enable teachers to give effective assistance to their students. The section entitled *Procedure* becomes less detailed and also less important as the teachers advance with the component because it is expected that their growing familiarity with the materials will enable them to work out the appropriate strategies for handling later lessons. However, in view of the unfamiliar content of a specialist component like *Reading Projects : Science* the teachers are advised to work through the activities of each lesson, checking appropriate textbooks and resolving problems before they embark on their teaching. They are also told to expect situations where the students might display knowledge that they do not possess but which they can exploit in order to get the students to interact among themselves to resolve the issue or issues that are related to their study subject.

In the *Student's Book* of the final version, the students are exposed to a greater variety of styles of writing and forms of presentation. There is also the benefit in terms of transfer of learning and motivation because the students can use the skills taught in the main programme to process texts that they encounter in this component.

Decision-making and problem-solving tasks which were not a feature of the pilot edition are built into the final version and conducted through topics that are more interesting and allow for more choice and selection on the part of both the students and the teachers.



The Orchestration of Skills in Part 4.

Flow Sheet for Part 4

Steps

1 Specify demand

2 Specify key concepts in demand

3 Possible to relate nature of concepts to presentation?
Yes: Go to 4 No: Jump to 6

4 Decide on best form of presentation

5 Information complete?
Yes: Jump to 21 No: Go to 6

6 Go to the library catalogues

7 Decide on and use reference tools

8 Specific tool: Use table of contents
Sufficient information? Jump to 11
Insufficient information? Go to 9

9 Specific tool: Use index
Sufficient information? Jump to 11
Insufficient information? Go to 10

10 Specific tool: Use glossary

11 Locate linear information

12 Recognize relationships between specific examples and concepts

13 Are there information gaps?
Yes: Go to 14 No: Jump to 20

14 Gaps in linear information?
Yes: Jump to 6 No: Go to 15

15 Gaps in non-linear information? Exact references?
Yes: Go to 16 No: Jump to 18

16 Locate non-linear forms

17 Non-linear forms relevant?
Yes: Jump to 12 No: Jump to 16

18 Go to subject catalogue

19 Locate articles on the topic
Articles relevant?
Yes: Jump to 12 No: Jump to 18

20 Organize information from all sources
Jump to 4

21 Write article

22 Compile bibliography

Conclusion

The pilot experimental teaching of Reading Projects has identified the shortcomings of the pilot edition which, for the most part, have been rectified in the final version. But that does not mean that the final version is foolproof. The effectiveness of such a component depends a great deal on the attitude of both the language teachers and the students. Generally, the language teachers have shown keen enthusiasm and a readiness to adapt in their teaching of *Reading Projects : Science* though initially there was some anxiety about its science content. While some doubt persists as to whether the students really view reading in English as important to their study course, they have demonstrated, in the pilot run, their preference for learning skills and practising these through scientific content.

It is likely that the final version of *Reading Projects : Science* will continue to be a novel and challening experience for the teachers. The outlook this time is definitely more optimistic. With the experience gained from the pilot teaching, they are no longer wary of the science content of the component, especially now that the final version is almost completely skill-focussed. As for the students the relevance of the content and the skills to their own study tasks should provide the necessary motivation.

The UMESP project may not have come up with the ideal specialist component to complement its main programme, but what is important is that such a component has been developed after much trial and tribulation. Inevitably, it will need to undergo metamorphosis, but we are confident that the feedback from the interaction of all the participants concerned in the teaching/learning process will continue to provide us with increasingly clear directions in making modifications and revision until a truly effective and successful component emerges.

APPENDIX I

PAS: Two levels of admission

A For Entry into Semester I

A pass in the Sijil Pelajaran Malaysia or Malaysian Certificate of Education with 'credit' in a minimum of three subjects chosen from the following: Mathematics, Additional Mathematics, General Science, Additional General Science, Physical Science, Physics, Biology, Chemistry.

B For Direct Entry in Semester III

A pass in the Sijil Tinggi Pelajaran or Higher School Certificate examination which is held not earlier than two years after passing the SPM/MCE examination, with a pass in at least one science subject at subsidiary level.

APPENDIX 2

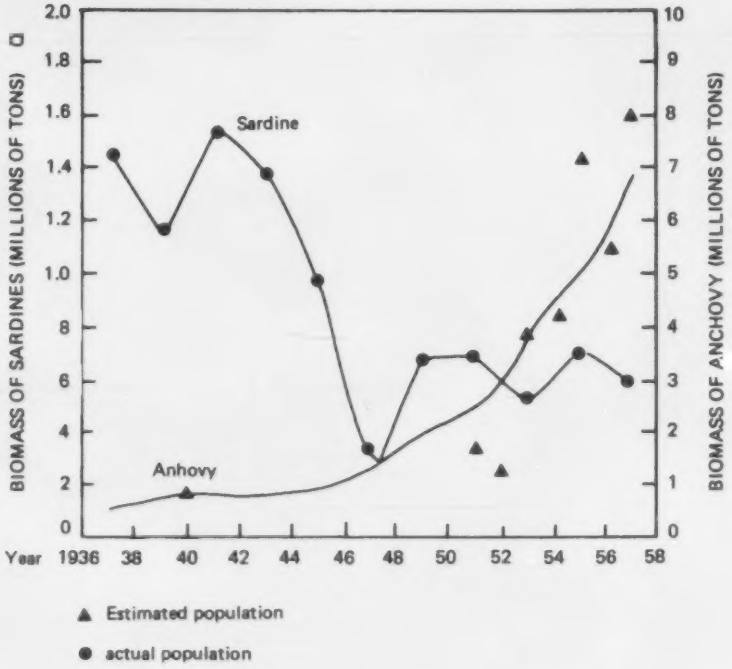
Lesson 5 Learning about Graphs

Most graphs are a representation of the relation between two variables, ie the dependent and the independent variables. In this lesson you will learn the basic terminology used in relation to graphs and you will also learn how to interpret different types of graphs.

Activity A Interpret the graph (1)

Here is a graph and five incomplete statements. A list of words is given in the margin.

Study the graph carefully and then complete the statements with the appropriate words from the list.



X
scales
0.6

1. In the graph P is the _____ variable and is plotted on the _____ axis against Q and R which are the _____ variables, plotted on the _____ axis.

peak
dropped
fluctuations
1.2 million tons
vertical

2. In 1952 when both lines _____, the biomass of sardines appears to be the same as that for anchovies. In fact the biomass of sardines was _____ tons whereas that of anchovies was _____ tons. We get these different readings for the same point on the graph only because the _____ along the two vertical axes are different.

Y
3
steady
falling
intersect
horizontal
increasing
decrease

3. Around 1941, the sardine biomass reached its _____ with about 1.5 million tons and then _____ drastically to a record low of .3 million tons after which it rose again around 1947. Thus the sardine graph line can be seen to show _____ whereas that of the anchovy shows a _____ rise from less than a million tons to 7 million tons in the period 1937-1957.

4. Between the years 1941 and 1947 the biomass of sardines dropped by _____.

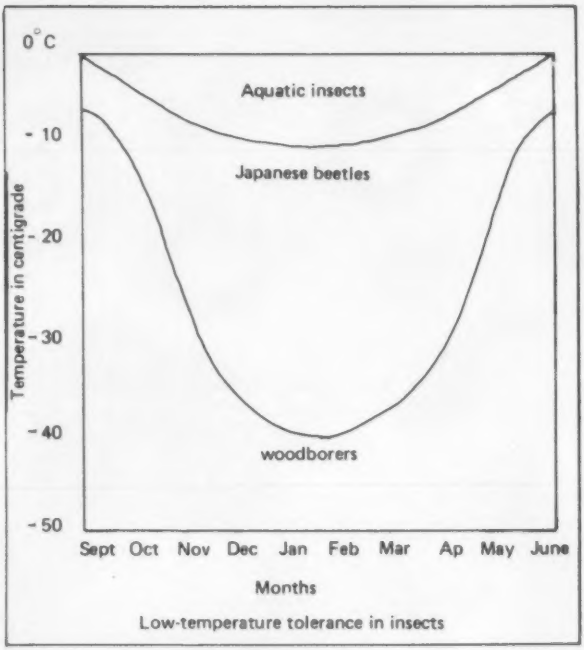
independent
dependent
gradient

5. From the trend of the population estimates for anchovy in the period 1941 to 1957 when the sardine population is shown to be generally _____, it can be concluded that there is a predictable relationship between the sardine population and the anchovy population; when the sardine population increases, the anchovy population can be expected to _____.

Activity B Interpret the graph (2)

The graph below shows the reactions of three insects - acquatic insects, Japanese beetles and wood borers - to low temperatures. Six incomplete statements are given after it. A list of words is given in the margin.

Study the graph carefully and then complete the statements with the appropriate words from the margin.



1 (a) seasonal
non-seasonal
(b) can
cannot

1. Aquatic insects, living mostly in lakes, exhibit a (a) _____ cycle in cold resistance; they can withstand long exposure to near freezing temperatures, but (b) _____ tolerate temperatures below freezing.

2 (a) Japanese beetles
wood borers
(b) very resistant
very sensitive
(c) -30°C
-40°C

2. (a) _____ become (b) _____ to cold as winter months, January to March, approach: in mid-winter they can withstand temperatures as low as (c) _____

3 die
become active

3. Wood borers become dormant at very low temperature during winter, but when spring approaches, they _____.

4 (a) wood borers
Japanese beetles
(b) seasonal
non-seasonal
(c) become
do not become

4. The (a) _____ living in what is described as intermediate habitat, exhibit a (b) _____ cycle in cold resistance but (c) _____ nearly as resistant as wood borers.

5 (a) highly important
not important
(b) most important
least important

5. To a land insect, the ability to adjust to radical temperature changes that accompany daily or seasonable rhythms is (a) _____, but to an aquatic insect living in environment with nearly constant temperature, this ability is one of the (b) _____.

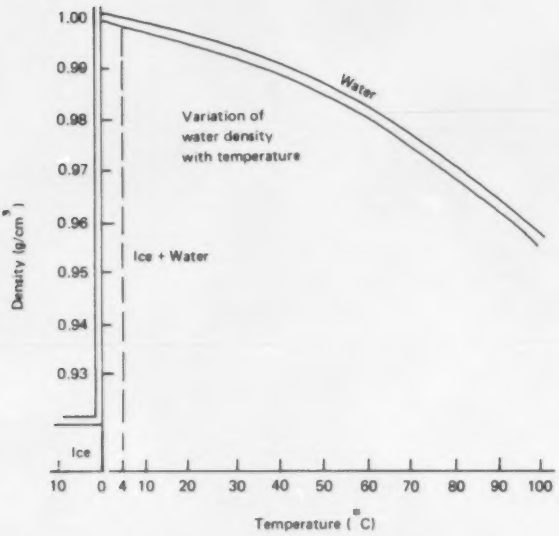
6 (a) land insects
aquatic insects
(b) land insects
aquatic insects

6. The conclusion that can be drawn from this fact is that (a) _____ , as a group, have a much wider tolerance of temperature changes than (b) _____.

Activity C Determine the main point of each graph

Here are five graphs. A question is given after each graph

Study each graph and then answer the question. Tick the



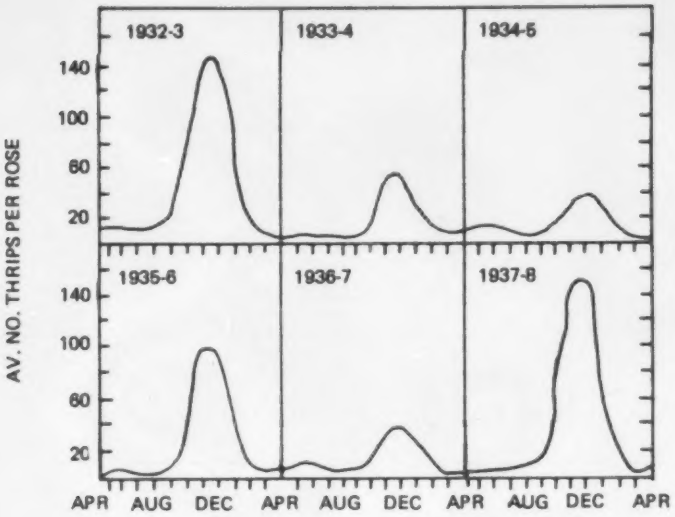
1 Which of the following are <u>not</u> conclusions that can be drawn from the graph?

(a) For the temperature range 4°C, the higher the temperature of water the lower its density.

(b) The density of water increases very slightly from 0°C to 4°C.

(c) As temperature increases from 0°C to 100°C, water density also increases.

(d) There are great fluctuations in water density from 0°C to 100°C.



Seasonal changes in a population of adult thrips living on roses. (Graph constructed from data by Davidson and Andrewartha, 1948.)

2 Which of the following are valid conclusions that can be drawn from the graph?

(a) The period September to February appears to be favourable to thrips.
(b) The population of thrips is probably affected by other factors besides seasonal changes.
(c) There is a regular pattern of an increase in one year and a drop in the following year in the population of thrips.
(d) Both (a) and (b).

3 Which of the following points is <u>not</u> illustrated by the pie chart?

(a) Some birds are more common than others in the wood sampled.
(b) The number of rooks is approximately twice the number of warblers.
(c) The population of jays increased at a faster rate than the population of thrushes.
(d) Although more magpies than hawks were observed in the wood sampled, magpies are nevertheless a relatively rare species.

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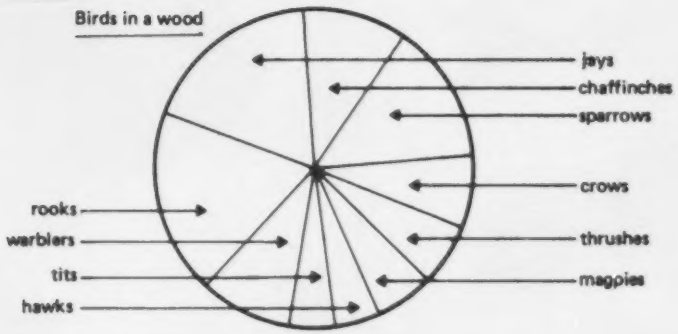
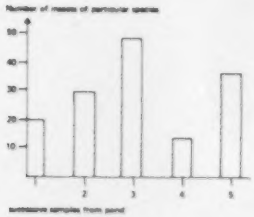


4 What do the columns in this bar chart indicate?

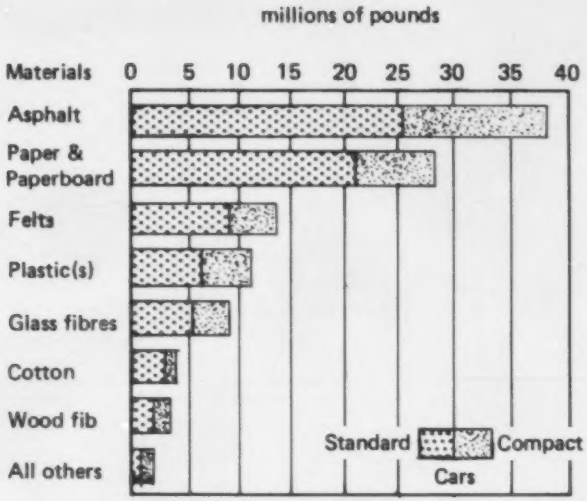
(a) Samples of five species of the same insect were taken.
(b) The number of insects of a particular species may vary from sample to sample.
(c) To get a fair picture of the actual population, it is better to take more than one sample.
(d) None of the above.



5 Which of the following points is <u>not</u> illustrated by the bar chart given on the next page?

(a) Asphalt is the most common material used for insulation in standard and compact 1961 passenger cars.
(b) The number of standard cars insulated with asphalt is more than the number of compact passenger cars.
(c) Insulation of compact passenger cars is cheaper than insulation of standard cars.
(d) More materials are purchased for insulation in standard cars than for compact passenger cars.

Materials Purchased for insulation in Standard and Compact 1961 Passenger Cars



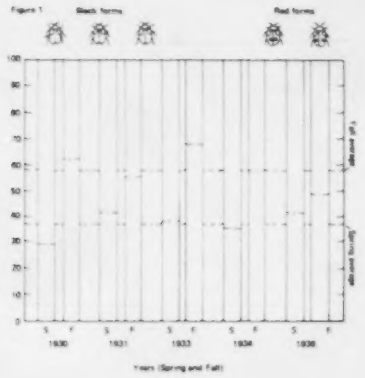
Activity D Interpret the graph (3)

Here are a number of graphs. There are four questions on each graph or set of graphs.

Study each graph or set of graphs and then answer the questions. Tick the correct answers.

1 The purpose of Figure 1 is to show:

(a) the rate of population increase of ladybird beetles.
(b) The population of ladybird beetles in the years 1930, 1931, 1933, 1934 and 1938.
(c) the population of black versus red ladybird beetles in the years 1930 to 1938.
(d) the ratio of black to red ladybird according to the seasons of the year.



Polymorphism in ladybird beetles. The ladybird beetle, *Adalia bipunctata*, is a polymorphic species, that is, individuals of the same interbreeding population represent a variety of different colours and spotting patterns.

2 The number of red ladybird beetles in the fall of 1934 was

(a) about 40.
(b) about 60.
(c) not given.
(d) more than in 1933.

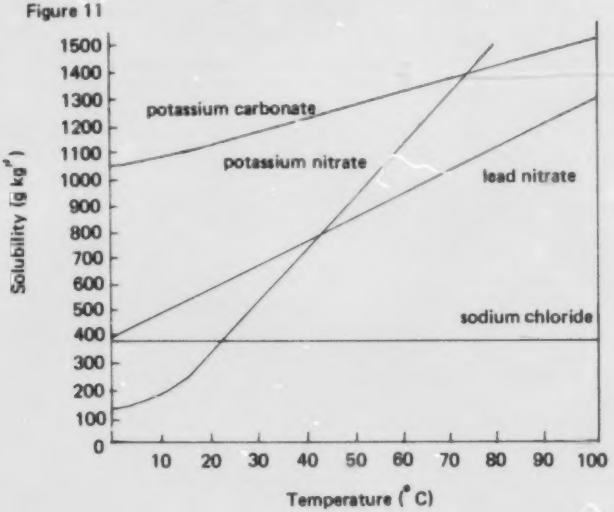
3 The pattern of change that occurs in the proportion of red to black beetles is best shown in

(a) 1930 and 1933.
(b) 1934.
(c) 1931 and 1938.
(d) all the above years.

4 The proportion of black to red ladybird beetles is generally greater

(a) in spring
(b) in the fall
(c) both (a) and (b)
(d) between spring and fall.

Figure 11



Solubility Curves

1 The purpose of this line graph is to show

(a) how the solubility of a substance varies with temperature.
(b) that the solubilities of different substances are affected differently by a change in temperature.
(c) that the solubility of sodium chloride is affected by changes in temperature.
(d) both (a) and (b).

2 Which of the following shows the most marked changes in solubility as a result of temperature change?

(a) potassium nitrate
(b) potassium carbonate
(c) lead nitrate
(d) sodium chloride.

3 The increase in solubility of potassium nitrate is

(a) highest when the temperature changes from 50°C to 70°C.
(b) highest when the temperature changes from 0°C to 20°C.
(c) uniform over the entire range of temperature shown.
(d) none of the above.

4 Which of the following is not true?

(a) Up to 20°C potassium nitrate is less soluble than sodium chloride.
(b) At about 45°C the solubilities of both potassium nitrate and lead nitrate are the same.
(c) Between 0°C and 100°C, the solubility of sodium chloride cannot be increased by increasing the temperature.
(d) None of the above.

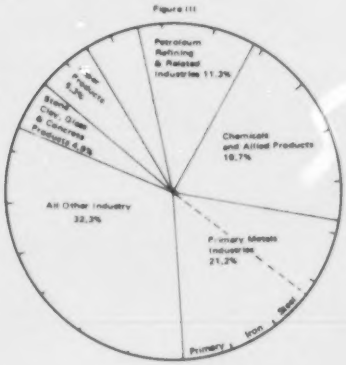


Figure III
Petroleum Refining & Related Industries 11.2%
Chemicals and Allied Products 10.7%
Primary Metals Industries 21.2%
Primary Iron & Steel
All Other Industry 32.3%
Stone, Clay & Concrete Products 4.2%

Figure A. Division of energy use in the industrial sector, 1970
Source: US. Office of Science and Technology. Executive Office of the President, Patterns of Energy Consumption in the United States (Washington, DC, 1972)

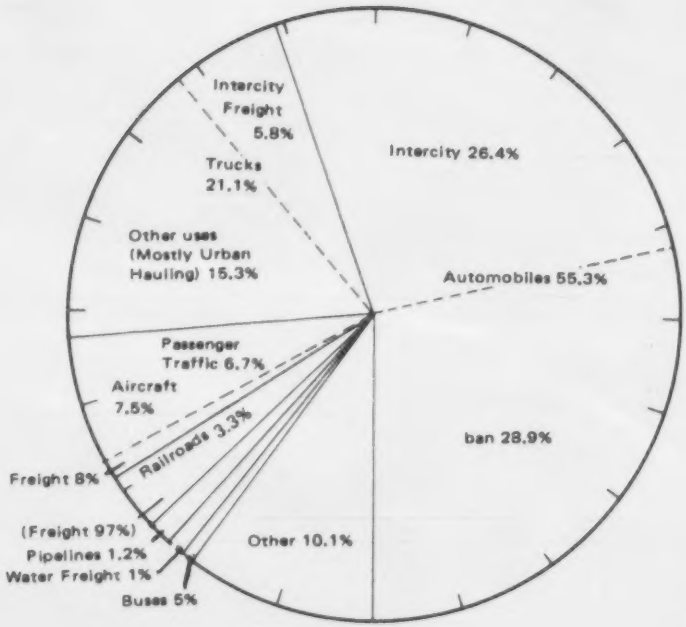


Figure B. Division of energy use in the transportation sector. 1970 ('Other' includes general aviation, non-bus mass transit recreational and passenger boating, recreational vehicles and other uses.) Source: E. Hurst, Energy Consumption for Transportation in the United States (Oak Ridge National Laboratory Report, ONRL-NSF-EP-15.)

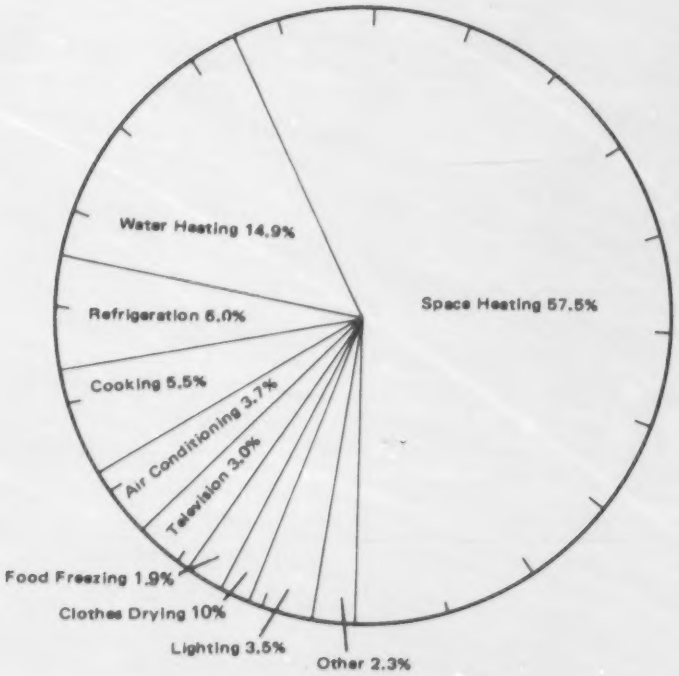


Figure C. Division of energy use in the residential sector, 1968. Source: Office of Science and Technology, Executive Office of the President, Patterns of Energy Consumption in the United States (Washington, DC, 1972).

1 These pie charts

(a) show the pattern of energy consumption in three major sectors of the US economy.
(b) show that space heating uses up the greatest proportion of energy in the US economy.
(c) compare energy consumption in the three major sectors of the US economy.
(d) none of the above.

2 Which of the following is not a valid conclusion to draw from the pie charts?

(a) The industrial, transportation and residential sectors in the United States consume the same amount of energy.
(b) The primary metals industries use up less than half the energy required for space heating.
(c) Space heating consumes more energy than automobiles.
(d) All of the above.

3 Which of the following statements is not true of Figure A?

(a) 'Chemicals and allied products' and 'primary metals industries' make up more than one third of the energy used in the industrial sector.
(b) Paper products consume as much energy as food processing.
(c) The primary metal industries are one of the major consumers of energy in the industrial sector.
(d) Paper products require the least use of energy in the industrial sector.

SPOKEN INTERACTION

Khong Chooi Peng

Background

The pre-UMESPP materials for spoken English at the Language Centre consisted mainly of situational dialogues and accompanying structural drills in social settings. In general, these materials tended to be of a remedial nature in that they sought to rectify some of the common errors of students from non-English schools. The emphasis was on correctness of form based on the belief that oral proficiency was attainable through intensive pattern-practice (in drills which involve repetition, substitution and different types of surface transformations such as changing questions to statements, or the present tense to the past).

When a separate provision was made within the Project for a specifically oral component, it was made in the belief that it would encourage competence in reading and provide the variety that would increase student motivation. The brief was for a common-core component of forty hours.

In an attempt to gain insights useful for the design of the Project as a whole, a survey was conducted among teachers at the Language Centre, using questionnaires and personal interviews. Findings specifically relevant to the oral component revealed that while the teachers themselves gave priority to the developments of the students' reading skills, they were of the opinion that:

a Students were especially motivated to become more proficient in spoken English (listed as 70% of the total student population) and were likely to rate their English competence by their ability to communicate orally;

b More challenging, functional and interesting ways of encouraging communication ought to be found;

c Activities such as role-playing, problem-solving and language games were more motivating than pattern-practice. (Some teachers had ventured into using such activities on their own and reported a distinct improvement in enthusiasm and level of participation by their students.)

A separate survey (using only questionnaires this time) was conducted among a cross-section of the student body in the Arts, Economics, Law and Science Faculties. The aim of the questionnaire was to get an overall assessment of the students' attitudes and perceptions of their own problems and needs vis-a-vis English as a whole and was not confined to spoken skills.

The findings from the section within the questionnaire specifically related to spoken English revealed that although there was a general consensus on the importance and desirability of acquiring spoken skills, opinions on needs within the campus and in future job situations varied greatly.

The absence of agreement on needs amongst students was perhaps not really much of a surprise. The situation then saw the rapid ascendancy of the National Language Bahasa Malaysia, and the replacement of English by Bahasa Malaysia both within the campus and the country. Set within this rapid transition period, it was felt that by the projected time of the completion of the Project, such needs as defined by these students would no longer reflect the true situation.

The period of flux rendered most of the data unreliable. Nevertheless, it was felt that some factors that would govern the selection of content and methodology could still be culled from the findings.

The factors that were taken into account in drafting the design and syllabus of the Unit were that:

1 All of the students at entry would have undergone some years of English language learning and although there were differences in actual number of years of learning, the common feature was that the syllabus followed was 'grammatical' in orientation;

2 Although the learning of grammar in schools did not result (in the students' own opinion and from teacher observation) in an ability to 'talk' ie communicate in English, nevertheless, some knowledge of grammar was a definite 'plus' factor for course design and content;

3 The students' motivation to want to 'talk' English was another definite asset, and that the emerging preference (among teachers and students) was for a course in which language was used to do something and get things done;

4 Given the constraints and the realities of the local situation, it would be unrealistic for a first-year undergraduate course to concentrate on spoken English for social situations or for occupational purposes. (The latter was seen as a desirable but more appropriate future goal for final-year courses.)

With these factors in mind what seemed possible and worthwhile was to attempt to identify the types of speech events (eg informal conversations, discussions, arguments) that students were likely to be involved in as undergraduates. From this, it seemed possible to then identify the types of language functions that had to be performed, and the methodology likely to be successful in their realisation. It seemed also possible to list common

core notions or topics of inherent interest to provide the context. It was recognised that in general, outside the language classroom, such speech events and functions were likely to be conducted through Bahasa Malaysia. Nevertheless it was strongly felt that it would be expedient to capitalise on roles and situations familiar to the students, and that an ability to communicate with competence and confidence in such situations through spoken English was a desirable terminal objective.

THE PILOT MATERIALS

Aims

The *Spoken Interaction* Unit has the following aims:

1 To develop a greater awareness among students of the features, rules and processes within spoken English and how they may be used;

2 To expose students to as many types of processes and functions of the language of spoken communication as is possible;

3 To help students to develop, through actual and purposeful use, more effective communicative skills;

4 To extend, at the same time, both their competence and confidence in communicating in English;

5 To provide the ancillary skills of eliciting and responding which are necessary for learning, and to facilitate and encourage the use of these skills for interaction within the reading components of the UMESPP course. Extending greater opportunities for practice in this way helps to provide as much immediately perceptible indications of progress as possible for confidence building.

Organisation of Materials

The Unit is divided into three phases. The following table attempts to give an idea of the range of activities and the progress from controlled interactions to later free communicative situations. A broad characterisation of the three phases is given with examples of language functions, topics or notions, mode and brief descriptions of activities. Further descriptions of each phase are given following the table.

	LANGUAGE FUNCTIONS	Topics/Notions	Mode	ACTIVITIES Description
Phase I Lesson 2	Asking for and giving information	Shapes, properties, dimensions	paired work	Competitive game based on the Twenty-question game format. The activity encourages the use of effective and relevant questions by limiting the number of questions allowed. Visual for talk is in the form of a classification chart (Tree-diagram) on common-geometrical shapes.
Lesson 7	Describing and Identifying; Asking for and giving clarification	Spatial relations	paired work	Cooperative game with partners using complementary sets of visuals. Materials have built-in alternating turns for describing & identifying. Unfamiliar language items provided.
Lesson 10	Asking for information; Describing; Requesting Thanking.	Similarities and differences; location	group work	Competitive game using a deck of cards containing nine sets of four similar-looking diagrams or groups of objects. The game requires recognition and accurate descriptions of similarities and differences. Players attempt to collect as many sets as possible to win the game.

	LANGUAGE FUNCTIONS	Topics/Notions	Mode	ACTIVITIES Description
Lesson 11	Giving and following instructions; checking;	Constructing Shapes	Paired Work	Cooperative activity in which partners work with identical equipment but different instruction sheets containing visuals. These are not visible to the partner. Players alternate in instructing and following instructions for putting cardboard pieces together to form specific shapes.
Phase II Lessons 15 and 16	Stating interpretations; Expressing preferences and judgements; Giving reasons –	Emotions and Reactions	Paired and group work	Activities require students to: – interpret, describe and agree on emotions reflected in facial expressions and actions, using visuals; – convey different emotions using varying tones of voice; – discuss, appropriateness of various reactions in given situations.
Lessons 18 and 19	Comparing and contrasting information; Assessing validity; Reasoning.	Personality	Paired and group work	Students administer and take a personality test, discuss validity and reliability of test results

Phase III Lesson 27

LANGUAGE FUNCTIONS	Topics/Notions	Mode	ACTIVITIES Description
Asking for and expressing factual information about self; Asking about and expressing attitudes; Expressing assessments and judgements of the attitudes of others.	Interviews	Paired and group work	Students discuss functions of interviews, the use and variety of direct and indirect questions for eliciting information on attitudes and personalities. The activities include role-playing as interviewer and and interviewee.

LESSONS 23 and 24

Assessing and evaluating worthiness of projects, Making recommend-ations; Reasoning.	Annual Student Activities and Projects	group and class work	Problem-solving situation involving discussion and evaluation of major campus events organised by the students council. Procedure includes reaching a group consensus and class discussion of decisions.

LESSON 37

LANGUAGE			ACTIVITIES
FUNCTIONS	Topics/Notions	Mode	Description
- Comparing and contrasting personalities, - Expressing judgements of character; - Persuading; - Reasoning.	Judging individual worth	group and class work	A problem-solving situation requiring first, group consensus, and finally, class consensus as measure of achievement. Problem given revolves around deciding which seven of eleven survivors of a ship wreck deserve places on the liferaft.

Phase I lessons are characterised by extensive use of cards, pictures and straightforward exchanges as defined by the rules of the games. The activities put students in situations where there is an immediate need for verbal communication to perform certain tasks through joint efforts of the pairs or groups. The language generated in this phase is relatively simple. The reason for this is two-fold:

1 that students may be led through a series of successful interactions. This is felt to be important for language learning;

2 items of language commonly misused by students may be revised. Common-core notions such as shape, properties, dimension, spatial relations are used as topics.

Phase II lessons move away from description and talk about inanimate objects to people and self. The lessons here introduce more complex situations in which increasing opportunity is given for eliciting and expressing personal interpretations, opinions or preferences and to give reasons in supporting these. Visuals are often used alongside written texts.

Phase III lessons consist of problem-solving situations many of which are open-ended. These discussion activities are meant to recycle the language functions focussed upon in preceding phases, while others such as arguing, persuading, justifying and reporting are focussed on here. Topics include common-core notions of measurement, methods, probability, rank and hypothesis. This phase makes more use of written texts with visuals provided where appropriate. It is believed that language skills involved in spoken discussion and argument will assist students to understand the structure of written texts.

Types of Material

The materials for the Unit include:

1 *class equipment* consisting of five card games, two complementary booklets (Booklets A and B) which contain materials needed for paired activities in Phase I where each member needs to work with a different set, and dividers (to be used when 'players' may not see each other's efforts); two *Course Books* (one for Phase I and one for Phases II and III together). These contain materials students should not see beforehand, instructions for games, and other resource materials;

2 the *Students' Book*, which contains introductions to the lessons, outlines of activities, guidelines, and space for brief written records of discussions. There are two separate books, one for Phase I and the other for Phases II and III;

3 the *Teacher's Notes*, which supplement the *Students' Book* and explain in greater detail the aims of each lesson, materials needed, suggestions for presentation, and the language likely to be generated in the activities.

Methodology

Given the objectives of the Unit and the constraints of time, the communicative approach was adopted as the most viable one. In its implementation the Unit has four basic concerns ie to:

1 maximize Student-Talking-Time;
2 maximize teacher-aid;
3 maximize activities that stimulate communication;
4 maximize opportunities for success.

Maximizing Student-Talking-Time

The deliberate effort to maximize communication among students is made through the reduction of Teacher-Talking-Time and teacher-centred activities as found in the traditional classroom. To achieve this, the Unit makes intensive use of paired and group work for the following reasons:

1 **This creates the proper psychological set.** Students become aware that they are on equal footing with each other and that they all have an equally important role towards the successful completion of each set task. Putting students in the same pair or small group for a period of time generates positive feelings of members towards each other. The willingness to cooperate results, and competition (in activities where a 'winner' is identifiable) is kept on a friendly level.

   In addition, it removes, to a large extent, the fear of making mistakes 'in public' that so often inhibits the students from saying anything in the classroom.

2 **This makes peer-teaching possible.** Increasing opportunities for this to occur is desirable because students themselves are more likely to succeed in eliciting and responding to difficulties encountered by their peers. To facilitate this, the Unit organises students of varying ability into each small group.

Maximizing Teacher Aid

Reducing Teacher-Talking-Time does not mean that the teacher had a role of reduced importance. In effect, the teacher's meaningful contribution towards the learning of each student increases considerably.

The teacher has the responsibility of starting the lesson and establishing the understanding of its aims and procedures. Such presentations include playing a round of a game or going through part of a discussion activity with

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the class, and highlighting through *actual use* the types of initiations and responses to be generated.

While the activities are being carried out, the teacher moves from group to group, acting as consultant and guide, providing aid where communication breaks down, correcting errors, arbitrating where discussion or argument reaches a deadlock, and generally facilitating interaction between students.

Maximizing Activities that Stimulate Communication

This is done through providing activities that are student-centred and student-led. The activities in the Unit attempt to make explicit:

1 what the student is expected to do in functional terms (eg describe, instruct, request, state opinions, persuade, justify);

2 for what purpose;

3 to or with whom;

4 what the particular situation is.

The important thing here is that no student is given the feeling that he can successfully accomplish the set task by using his own materials or working on his own.

To further increase communication, visuals are used (especially in Phase I) to give students maximum freedom to say what they feel they need to say. Using visuals also creates the right kind of 'pressure' to call into active use the students' latent knowledge of the language. In short, the activities and the accompanying aids attempt to get students to *make use of language* for specific ends.

Maximizing Opportunities for Success

The Unit recognizes that adult learners often have something to say in given situation. Helping them to say what they *want* to say and to say it *correctly* is far more economical and inherently more motivating than to prescribe what they *ought* to say. Furthermore, it creates an important feeling of *achievement* as well.

Absolute correctness of form or phonology is not a major criterion for success in the Unit. It is probably true to say that the teacher will hear far more errors around her in the classroom than she can handle at one time. But the crucial first step towards 'error-free' speech is to get students to *produce* these errors for correction and subsequent replacement, through constant practice, by more acceptable forms.

The Unit measures success in terms of ability to accomplish set tasks through spoken communication with increasing fluency. The communication that is generated is considered far more important than the activities themselves. Therefore, there are few 'correct answers' in the Unit except where these are used as built-in checks on successful communication in activities such as those with 'describe/identify' or 'instruct/perform' roles.

Classroom Organization

The classroom organization recommended for the whole UMESPP Course is particularly important for this Unit. Within a given lesson the student is often required to work with the partner opposite him or beside him. This is necessary for various reasons: opposite partners need to exchange information which ought not to be visible to both, while partners beside each other often have to share printed materials such as cards or pictures. Furthermore, lessons may begin or end with group discussions. Therefore the seating arrangement has to facilitate smooth transition from one mode to another.

For each group of four, a group leader is appointed on a rotating basis. The prime responsibility of the group leader is to manage or 'chair' the proceedings, ensuring that things progress smoothly and that other members are given the opportunity (or are encouraged) to participate. In addition, reports of groups' discussions or decisions to the rest of the class are built into many of the lessons, especially in Phase III. This job of reporting is again the responsibility of the group leader and, by rotating the leaders, each student is assured of at least one opportunity for practice.

Reception by students and teachers in the pilot year

The evaluation of the Unit followed the system established for the whole UMESPP Course, using the same student and teacher samples from the three institutions.

Student Evaluation

A separate questionnaire specifically related to the Unit was used for the students. This attempted to obtain feedback on four issues. Students were asked if they:

1 understood the aims of the lessons;

2 found the lesson enjoyable;

3 encountered any difficulties within the lesson, and if so, to identify what the problems were, and why they occurred;

4 felt that they had improved their ability to speak the language.

Teacher Evaluation

Issues on which feedback was felt to be necessary seemed common to all Units. However, this Unit attempted to get maximum feedback on what seemed particularly important, ie:

1 activities which did not generate the type of communication expected;

2 techniques that were considered highly successful:

3 the quantity and quality of interaction generated in each activity.

The data collected was examined for trends within each class, each faculty or institution, and finally, the entire sample.

Findings

1 On the whole, the data collected indicated that the students' reaction to the Unit was a favourable one with a large majority of the sample responding positively to questions related to items 1, 2, and 4 mentioned above (see *Student Evaluation*).

2 The attempts to gather feedback on difficulties encountered (item 3) by the students produced a mixed variety not really indicative of a general trend. However, noticeable comments from the early periods of the evaluation stating an inability to use English (eg. 'I am shy to speak' or 'I do not know enough English words') completely disappeared towards the end of the year.

3 Teacher reception of the Unit has been, on the whole, a rather enthusiastic one despite initial concern over grammatical errors. Findings indicated firm support for the principles upon which the Unit is based. Reports on lessons towards the end of the Unit indicated significant improvements on the quantity and quality of interaction, student fluency, and a high level of involvement and active participation.

4 Criticism of the Unit (there have been quite a few) were directed mainly at unsuccessful attempts at realising the principles of the Unit. Others can be summed up at criticisms of:

a **Content**

i There were feelings that there is an over-dominance of 'science-like' objects and activities in **Phase I** which gave non-science students the feeling that they were dealing with science;

ii The focus in **Phase I** lessons on inanimate objects (to control and recycle these) for the practice of different language functions often left students with a feeling of not having learnt enough 'new vocabulary'.

b **Rubrics**

It was generally felt that the language of the instructions in the *Students' Book* was too difficult and that this was especially true of the explanations of rules for some of the games in **Phase I.**

Revision of materials

1 The system of revision took the following steps:

a each lesson was re-examined against the feedback from the field;

b factors that needed to be taken into account were identified;

c these were then incorporated into new lesson or activity brief for rewriting by team members;

d new activities and lessons were next reviewed for inclusion in the final materials.

2 The most apparent result of the revision exercise vis-a-vis *Spoken Interaction* is its physical incorporation into *Reading for Academic Study* (Books I and II). This has resulted in other major physical changes arising from implementing guidelines established for the entire UMESPP Course. These changes include:

a the removal of physical divisions of the materials into phases;

b dispensing with types of materials such as *Booklets A and B* and *Course Books.* The materials contained in these have been transferred to the appendices of the students' book in *Reading for Academic Study.* The original *Teacher's Notes* are now found within the *Course Manuals.*

3 Revision of the Unit for pedagogical reasons includes:

a re-sequencing of the lessons to provide a better variety and grading of progression;

b replacing lessons which were unsuccessful in realizing the basic principles;

c merging lessons which were repetitive or closely similar in aims and content;

d simplifying the rubrics in the *Students' Book* to facilitate comprehension and smooth progress of activities;

- transferring detailed explanations of procedures to the *Course Manual* to allow the teacher the flexibility of translating these into the level of language comprehensible to her students.

Conclusion

Our experience with *Spoken Interaction* in the pilot year and the feedback received thus far on the revised materials in *Reading for Academic Study* have reaffirmed our faith in the approach we have taken. Part of the success we have had with our materials is due to the close affinity in approach to the rest of the materials in *Reading for Academic Study*, particularly those originally within *Strategies for Reading.*

We also believe that the course design of our materials is basically adequate in that it does seem to meet the level of competence of the students for whom the materials were written. The factors within the current situation indicate that it is unlikely that the level of competence of the students in the near future years will be radically different. It is unlikely too that the needs for spoken English within the campus will radically change.

On the other hand, indications point to increasingly specific job-related needs outside the campus. From this, it seems clear that a logical and desirable extension to the materials would be various courses designed specifically for spoken English for occupational purposes.

Sample materials

The sample materials given below are reproduced from *Reading for Academic Study* (Book I). In each case, only the main activities of the lesson are given. Student materials and the accompanying visuals or cards are given first. Teacher's notes from the Course Manual follow, with aims for the whole lesson and notes for the selected activities.

Lesson 31 **Describing Shapes**

Activity B

-
-

Ask six questions about shapes

Each of you will be required to choose three figures from the classification chart.

Identify each of the figures your partner has chosen by asking him no more than six questions about the shape of the figure. When you have finished identifying one of your partner's figures, let him identify one of yours. Begin each question with "Is it. . .?" and say only "Yes" or "No" in answering a question.

Activity C

-
-

Ask six questions about properties

This activity is basically the same as Activity B. However, the focus here will be on the properties or characteristics (number of sides, types of angles, surfaces, etc.) of the figures.

Proceed as you did for Activity B. This time, however, begin only two questions with "Is it. . .?" Use "Does it have. . .?" for the rest. Do *not* use the following expressions:

quadrangular

triangular

part of a circle

with a circular cross-section

with a rectangular cross-section

Lesson 31 Describing Shapes

Materials

Student's Book: pp. 206–211
Cross-references: Lessons 19, 34 and 35.

General Aims

1 To enable students to ask questions about and describe some common geometrical shapes as well as objects in everyday life that possess these shapes.

2 To enable students to learn how a classification scheme can be optimally used to identify 'unknowns' contained within it. For this a '20-question' type game format has been adopted.

Activity B (20 minutes) **Ask six questions about shapes**

Specific Aims

1 To give students practice in asking and answering information-seeking questions. Specifically, to give them practice in asking questions that begin with 'Is it' . . . ?'

2 To encourage students to ask effective and relevant questions by limiting the number of questions they can ask.

3 To encourage students to check, challenge and comment on each of these questions and answers.

Procedure

Be familiar with how the game is to be played.

(a) The only linguistic difficulty that the classification chart presents is that adjectives (attributes) are not distinguished from the nominals (entities) eg 'Is it a U-shaped curve?'

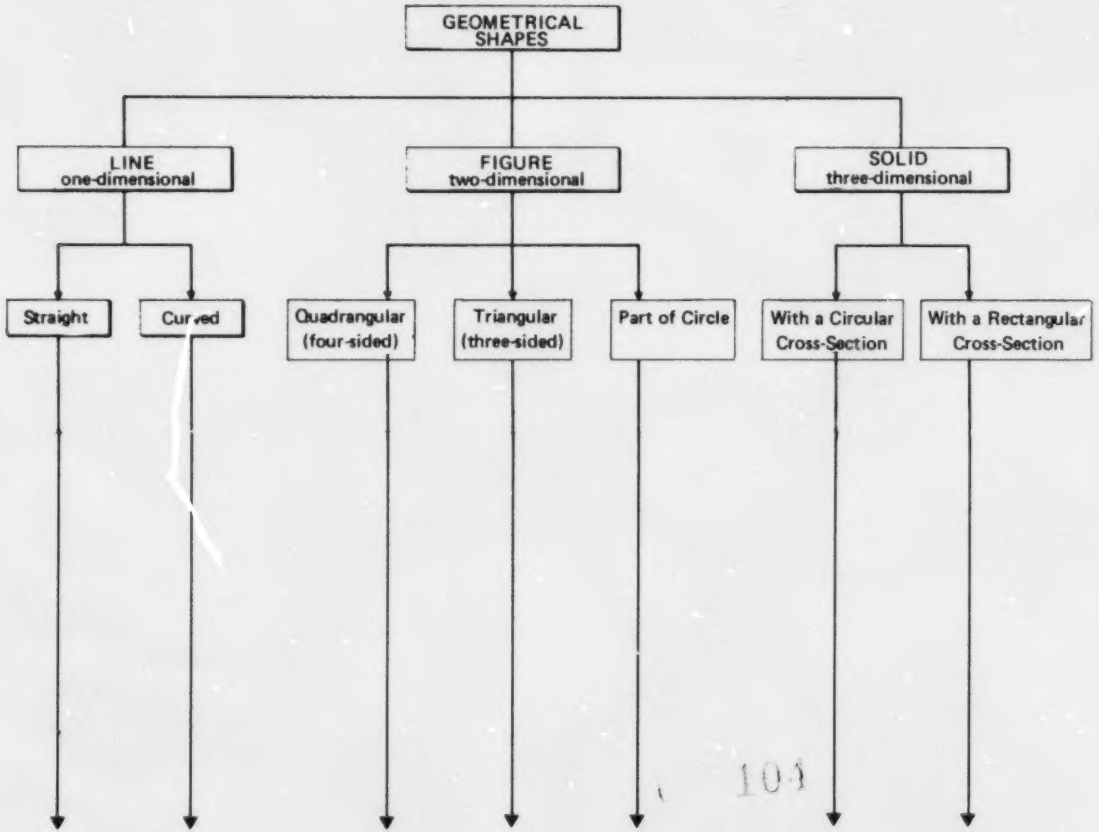
(b) The optimum strategy of the game involves:

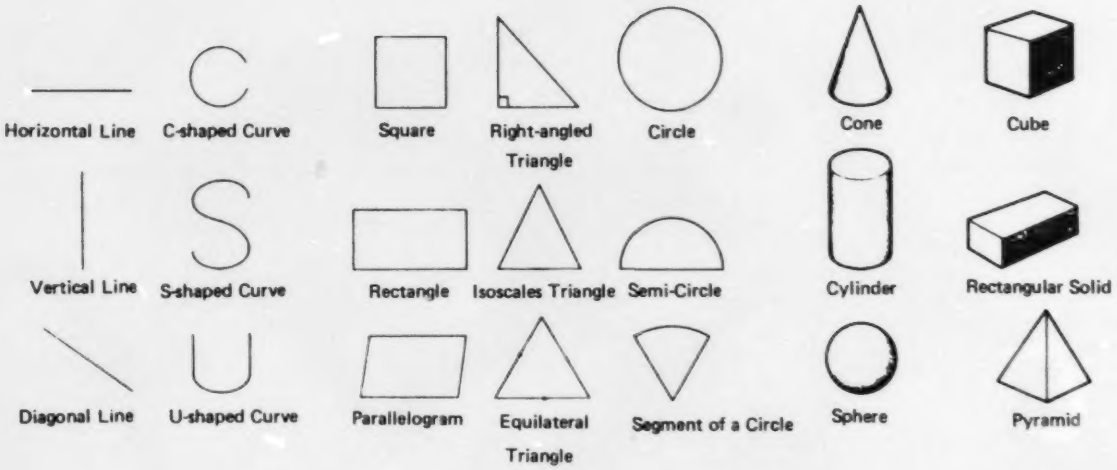
(i) paying attention to negative as well as positive evidence. Thus, within the restricted set of figures shown on the diagram, the answer 'No' to the questions 'Is it one dimensional?' and 'Is it two dimensional?' makes the question 'Is it three-dimensional?' unnecessary.

(ii) using the classification scheme shown in the diagram asking questions about the higher orders of classification before the lower. Thus the question 'Is it two dimensional?' should be asked before questions like 'Is it a line?' or 'Is it a figure?'

Presentation

1 Choose a figure from the classification chart. Then get the students to identify the figure you have chosen by asking you no more than six questions. Say only 'Yes' or 'No' in answering.


GEOMETRICAL SHAPES
LINE one-dimensional
FIGURE two-dimensional
SOLID three-dimensional
Straight
Curved
Quadrangular (four-sided)
Triangular (three-sided)
Part of Circle
With a Circular Cross-Section
With a Rectangular Cross-Section


Horizontal Line
C-shaped Curve
Square
Right-angled Triangle
Circle
Cone
Cube
Vertical Line
S-shaped Curve
Rectangle
Isoscales Triangle
Semi-Circle
Cylinder
Rectangular Solid
Diagonal Line
U-shaped Curve
Parallelogram
Equilateral Triangle
Segment of a Circle
Sphere
Pyramid

each question. It is expected that they will not be able to identify the figure.

2 Next, tell the class to choose a figure from the classification chart. Leave the room while they decide on the figure. Then show how you can identify the figure they have chosen by asking no more than six questions. Write your questions on the blackboard.

Here is an example of a round.

Object chosen: a pyramid.

Questions	Answers
Is it *one-dimensional?*	No
Is it *two-dimensional?*	No
Is it *a solid with a circular cross-section?*	No
Is it *a cube?*	No
Is it *a rectangular block?*	No
Then it must be a pyramid.	Yes

Note that only five questions were asked in this round.

3 Note that the students are likely to need extra help with the three-dimensional figures. The students may have problems asking questions like the following:

Is it *a solid with a rectangular cross-section?*
Is it *a solid with a circular cross-section?*

4 Tell the students to record their scores and demonstrate how scoring is done. For example, if only four questions are asked, the questioner gets four points. A player who does not succeed in identifying the figure correctly with six questions gets ten points, i.e. he is penalized by having four more points added to his score. The player with the lower score is the winner.

5 Let the students proceed in pairs. Three rounds for each player are recommended for this activity.

Feedback

Monitor paired work and provide examples of structures where necessary.

Activity C (20 minutes)

Ask six questions about properties

Specific Aims

1 To give students practice in asking and answering information-seeking questions. Specifically, to give them practice in asking questions that begin with "Does it have . . .?, in addition to questions that begin with "Is it . . .?"

2 To encourage students to ask effective and relevant questions by limiting the number of questions they can ask.

3 To encourage students to check, challenge and comment on each of these questions and answers.

Procedure

Presentation

1 Demonstrate how questions that begin with "Does it have . . .?" may be asked in place of questions that begin with "Is it . . .?"

For example:

Instead of:	You can ask:
Is it two-dimensional?	Does it have two dimensions?
Is it a part of a circle?	Does it have a curved line?
Is it triangular?	Does it have three sides?
Is it a solid with a circular cross-section?	Does it have a curved surface?
Is it a solid with a rectangular cross-section?	Does it have a rectangular surface?

2 Tell the students to record their scores.

3 Let the students proceed in pairs. Three or four rounds are recommended for this activity.

Feedback

Monitor paired work and give help where necessary. Some students may need help with concepts like "surface" and "side".

Student's Book

Lesson 35 **Collecting a Set**

Activity B ●●●●

Collect a set

In this activity your group will be given a deck of thirty-six cards – nine sets, each having four cards. Note that the figures in each set are different in a number of ways and that each card contains one big diagram and three smaller diagrams. The smaller diagrams indicate which *other* cards belong to the set. Your teacher will explain the rules of the game to you.

Collect as many sets as possible by accurately describing the cards you need to each other. Listen carefully when a card is being described to you so that you can check to see if you have it. Listen also when cards are being described to others so that you can find out which members have the cards you need.

(Two sets of cards are given on the following pages as samples from the deck.)

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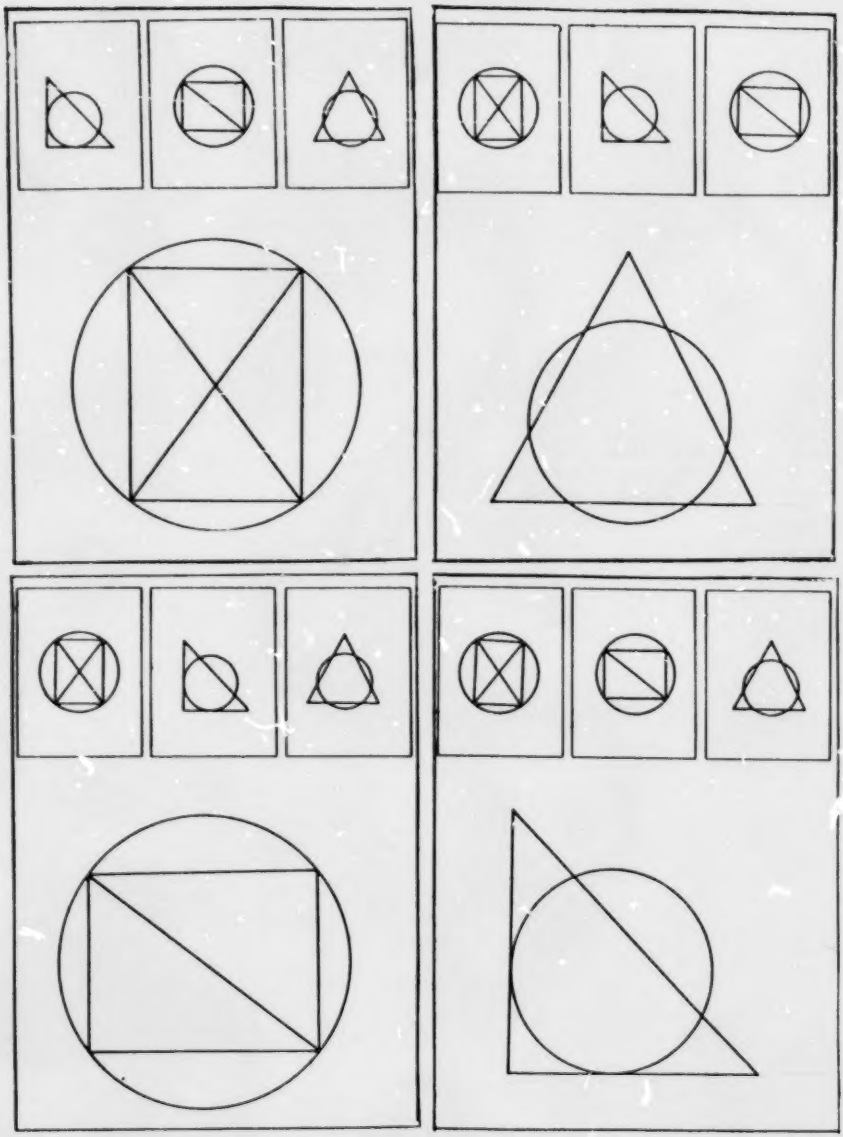


Lesson 35 Collecting a Set

Materials

Student's Book: pp. 227–229.

Auxiliary Material: One deck of 36 cards per group.

Cross-reference: Lessons 31 and 34.

General Aims

1 To enable students to describe spatial relations by getting them to revise what they learnt in the previous lesson and by introducing them to new expressions.

2 To give students practice in making comparisons and contrasts.

3 To enable students to use the passive voice in addition to the active voice.

4 To enable students to realize the functions of thanking and requesting.

Activity B (40 minutes) **Collect a set**

Specific Aims

1 To put students in a situation which requires them to make use of the expressions describing spatial relations that they have been exposed to so far.

2 To familiarize students with some ways of realizing the functions of thanking and requesting.

Procedure

You have an important role to play in motivating students to win this game. Impress upon them that the activity aims at providing them with an enjoyable situation in which to practise language skills. The game is based on the *Happy Family* card game.

Presentation

1 Distribute a deck of cards to each group.

2 Explain to the students how they should play the game (see p. 128).

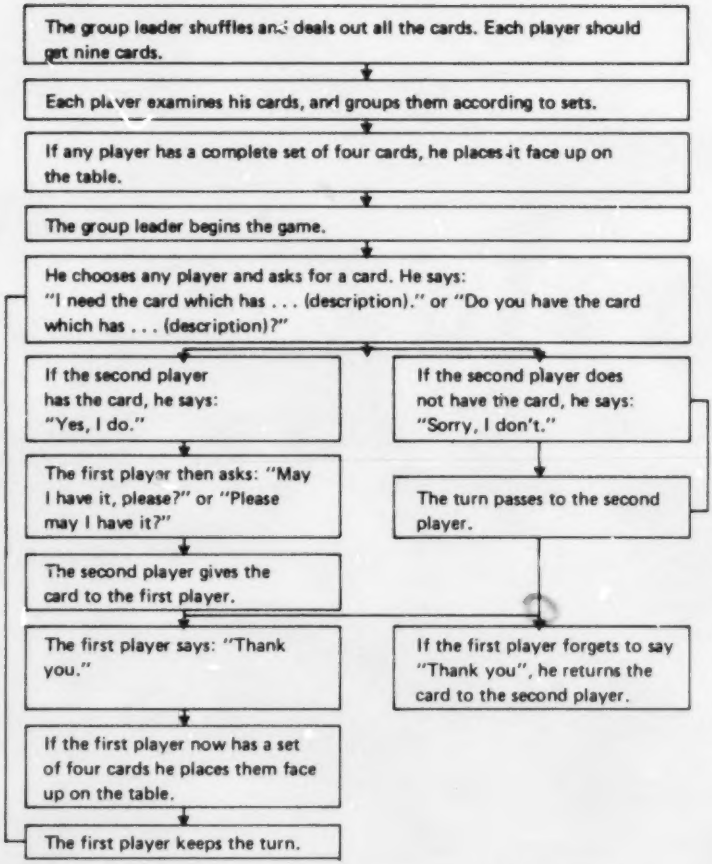
3 Follow up the explanation with a demonstration. Assume the role of the first player, choose any student and ask for a card. Get other students to ask each other for cards. Make sure that the game is correctly played. Stress that it is essential for a student to listen to the others in the group during the game in order to find out which students possess the cards he needs. Highlight the appropriate language structures. Write these on the blackboard.

4 When the students have understood the rules, allow them to play the game in groups.

5 The groups which finish early can start a new game.

Note: No additional material is provided for this lesson as the game can be replayed.

Rules for Collecting a Set


The group leader shuffles and deals out all the cards. Each player should get nine cards.
Each player examines his cards, and groups them according to sets.
If any player has a complete set of four cards, he places it face up on the table.
The group leader begins the game.
He chooses any player and asks for a card. He says: "I need the card which has . . . (description)." or "Do you have the card which has . . . (description)?"
If the second player has the card, he says: "Yes, I do."
If the second player does not have the card, he says: "Sorry, I don't."
The first player then asks: "May I have it, please?" or "Please may I have it?"
The turn passes to the second player.
The second player gives the card to the first player.
The first player says: "Thank you."
If the first player forgets to say "Thank you", he returns the card to the second player.
If the first player now has a set of four cards he places them face up on the table.
The first player keeps the turn.

The game can end either when one of the players has no more cards or when all the cards are collected into sets. Decide beforehand which you prefer.

Penalties. If a player misinterprets a description and gives a wrong card, the other player keeps the card. If a player deliberately withholds a card, he loses that card plus the other cards in the same set which he has.

Lesson 39 Giving and Following Instructions

The aim of this lesson is to give you practice in giving and following instructions accurately. The tasks require you to be very specific when giving instructions and to ask questions when instructions are not clear or adequate. This is to ensure that instructions are correctly followed.

Activity A

△○

Learn to describe and construct figures

You will be given two sets of cardboard pieces (Sets A and B). You must be familiar with each piece and be able to describe it accurately.

Study each cardboard piece carefully. Learn the names of the angles and the lines. Then follow your teacher's instructions carefully to construct certain figures. Ask questions if you do not understand anything.

Activity B

●
●

Construct figures (1)

You will use Set A and a set of diagrams for this activity.

Study each diagram and then construct the figure shown using the cardboard pieces in your set. Use the numbers and letters on the cardboard pieces as a guide. Then give your partner suitable instructions to enable him to construct the figure. Now reverse roles with your partner, this time using one of his figures. Proceed in this way to the end of the activity.

Activity C

●
●

Construct figures (2)

You will use Set B and another set of diagrams for this activity.

Follow the procedure used in Activity B. Note that the cardboard pieces have neither numbers nor letters on them.

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Lesson 39 Giving and Following Instructions

Materials

Student's Book: pp. 252–253.

Auxiliary Material: Student's Book: Appendix 10 (pp. 433–535)
Appendix 17 (pp. 449–451), and
two sets of cardboard pieces (Sets A and B)

Cross-references: Lessons 4, 12, 34 and 35.

General Aim

To give students practice in giving and following instructions accurately, using the terms of spatial relations generated in earlier lessons.

Activity A
(10 minutes)

Learn to describe and construct figures

Specific Aims

1 To provide students with practice in following oral instructions.
2 To encourage students to ask questions if they do not understand instructions.

Procedure

This activity requires precise instructions.

Presentation

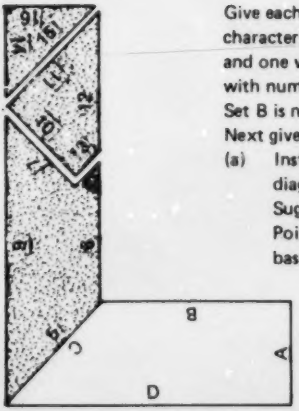
1 Before the activity, draw the outlines of the four pieces on the blackboard.
2 Generate the use of the following terms:

four-sided piece	**diagonal line**
five-sided piece	**horizontal line**
acute angle	**vertical line**
right angle	**base**

Give each student Sets A and B. Draw their attention to the following characteristics. The cardboard pieces in both sets have one brown and one white surface. In Set A, the brown surface edges are labelled with numbers, and the white surface edges are labelled with letters. Set B is not labelled.

Next give a demonstration along these lines.

(a) Instruct the students to construct an L-shaped figure. (See diagram)
Suggest that they start with the bottom piece and move upwards.
Point out that the bottom piece has the longest line as a horizontal base.



An L-shaped figure

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Activity B (20 minutes)

Construct figures (1)

Specific Aims

1 To allow students to practise giving specific instructions and to follow them.
2 To put students in a situation where asking questions for clarification and checking are integral to the task.

Procedure

Ideally, the pairs should not be allowed to see the instruction sheets or what the performer is doing. The instructor should only look at the performer's figure after the latter has followed all the instructions. Do not allow the instructor to touch the performer's pieces or to use gestures.

Presentation

1 Make sure the students use Set A and the correct sections in their books.
2 Also make sure that the students sitting side by side are working with identifical instruction sheets.
3 Help pairs to give instructions or ask questions whenever necessary.
4 Get the instructors to tell their partners to jumble up their pieces before they begin with the next figure.

Activity C (20 minutes)

Construct figures (2)

Specific Aim

To give students further practice in giving precise instructions in a more difficult situation. Here students use unlabelled sets which require them to rely on greater descriptive skills.

Procedure

Make sure pairs use the correct set. Weaker students may need more attention and help. The procedure is the same as the one used in the previous activity.

Lesson 39

(b) Stress the use of words that signal sequence, e.g.

first	**after this**
next	**finally**
then	

(c) Build in checking points as you go along, e.g.

Make sure that Line D is at the bottom and is horizontal.

Join . . . so that the angle formed by joining lines 6 and D is a right angle.

(d) Conclude the demonstration by drawing the figure on the blackboard.

5 Next, choose a student. Brief him on how the figure below is to be constructed. Suggest that he starts from the left and moves to the right. Draw the correct shape on the blackboard at the end. Tell him to instruct the class.

A rectangular-shaped figure

Take the role of performer yourself by checking and asking questions that seek clarification, e.g.

Is it the larger or smaller four-sided piece?

Does the acute angle now point to the left?

Do I have to turn it upside down?

Is there a right angle at the bottom on the right?

Which side should face upwards – brown or white?

Feedback

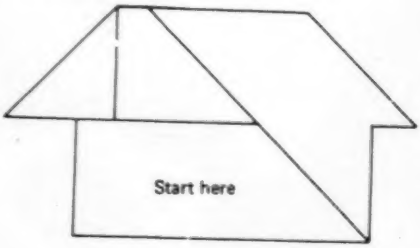
Monitor the students' progress. Provide help where necessary

Appendix 10: for Student I

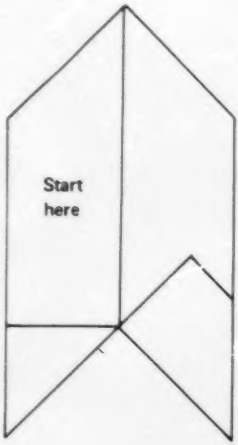
Activity B

Make sure that you are working with Set A. The cardboard pieces on this set have numbers and letters on them.

1 House-shaped figure



2 Rocket-shaped figure



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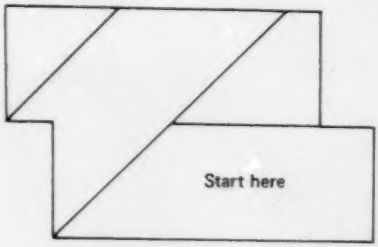
Appendix 10: for Student I

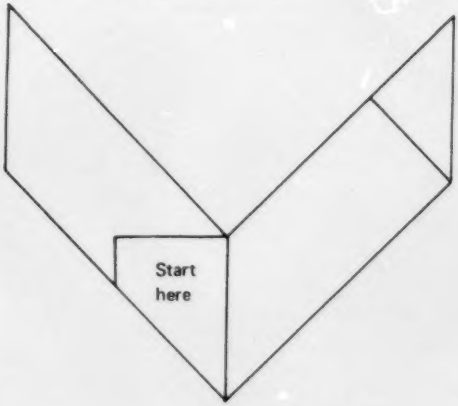
Activity C

Make sure that you now work with Set B. The cardboard pieces in this set have neither numbers nor letters on them.

1 Double-rectangle



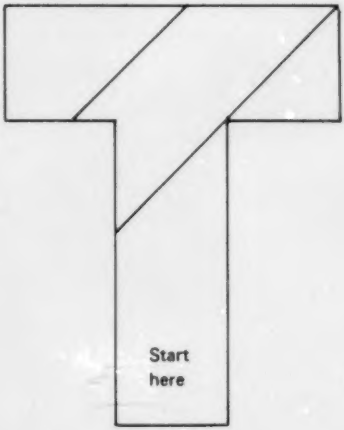
2 V-shaped figure



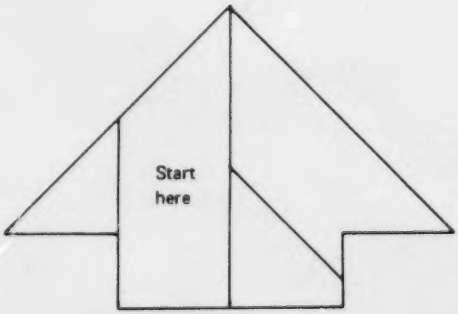
Appendix 17: for Student II
Activity B

Make sure that you are working with Set A. The cardboard pieces in this set have numbers and letters on them.

1 T-shaped figure



2 Arrow-shaped figure

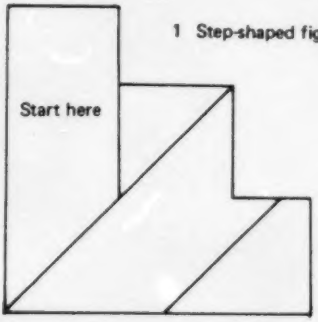


APPENDIX 17: for Student II

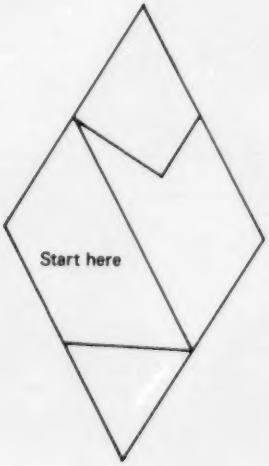
Activity C

Make sure that you now work with Set B. The cardboard pieces in this set have neither numbers nor letters on them.

1 Step-shaped figure



2 Diamond-shaped figure



THE ROLE OF TESTING IN UMESPP

ENGLISH FOR SPECIAL PURPOSES PROJECT
Tan Soon Hock

Testing was a crucial component of the Project, the outset of which was signalled by a Reading Attainment Test administered to a large sample of the undergraduate population. The consequence of this test, together with a host of other small-scale diagnostic tests, guided the project team in preparing the blueprints for the teaching materials and helped the writer in constructing a Reading Proficiency Test which was to be the evaluative instrument of the programme. Since then a testing process has been continuously maintained.

To provide an idea of what the component involved, this paper will attempt to trace, in brief, the development of testing in UMESPP, from the start to the present, in three sections:

1 The initial testing programme

2 The development of the Reading Proficiency Test

3 The evaluation of the project materials.

The Initial Testing Programme

1 READING ATTAINMENT TEST

Devised in May, 1975, the test was administered to approximately 2,000 undergraduates from the Faculties of Arts, Economics, Law and Science, with the following aims:

Aims

a to provide a basis for the design of an objective global measure of what it is reasonable for the project designers to take as the initial reading level of the target students;

b to point out broad areas of difficulty so that more sensitive diagnostic tests could be devised to assess the exact nature of the students' difficulties in tackling academic texts;

c to identify the pertinent variables that affect reading comprehension among our students through factor analysis; and

d to provide a global measure of comprehension against which further tests of knowledge of grammar, rhetorical purpose, vocabulary etc may be correlated to see how important each of these sub-components is in overall reading attainment.

Test Design and Functions:

The test had two parts comprising the following elements:

Part I

1 four extracts from academic texts with ten multiple-choice objective questions each, testing broadly the following skills:

literal comprehension centring on rephrases of apparently difficult syntactic items and process descriptions;

responsiveness to rhetorical structure and purpose;

vocabulary related to notions common in academic study;

ability to make inferences based on given texts;

ability to perform study operations such as selection and classification;

ability to interpret conversions of prose information into other channels.

2 Three operational tests where students translate the information given in prose form into a non-verbal mode using such communicative universals as graphs, diagrams or number.

Part II - Cloze tests based on Bahasa Malaysia translations of the original four texts.

The primary purpose of this section was to assess students' ability to recall shown by research to be an important constituent of comprehension and learning. The secondary purpose of these tests was also to give students an opportunity to express their understanding of the original texts in their native language should the question forms of the original comprehension have confounded them. A further purpose was to test the responsiveness of students to linguistic cues (given the fact that the content was familiar) in their native language. This was to see if there was an L_1 competence here which could be utilised in teaching the L_2.

Findings:

Based on a stratified sampling of 740 students from both English and Malay Mediums some of the more pertinent results were as follows:

1 Table 1: Mean Scores of Students according to Medium

	Medium / Test	English	Malay	Significance	Max.Score
a.	4 University-level type passages	22.47	12	p 0.01	40
b.	3 operational tests	19.15	6.74	p 0.01	30
c.	Whole test	41.43	16.85	p 0.01	70

Comparing the means of the two mediums, the stark contrast between the two was evident. The performance in the entire test was indicative of the low level of proficiency in the sample, with the English medium scoring 58% and the Malay medium lagging behind at 24%.

2 Table 2: Mean Score of Multiple-Choice and Cloze Items of Malay-Medium Population only

	Test	Mean	Maximum Score
a.	4 University-level type passages in English	12	40
b.	Cloze of Bahasa Malaysia translations of the 4 passages in (a)	34	80

Performance in the Cloze test was equally poor. The statistics pointed to a possibility that the original four passages in English might have been too difficult for students to have had anything to remember (the English passages were not available for the Cloze tests in Bahasa Malaysia). Any further linguistic cues, therefore, even in Bahasa Malaysia, were not of any great advantage. It might have also reflected a poor ability to read in the native language. One might have expected the Bahasa Malaysia context to both stimulate recall and generate understanding even independent of the original English texts to a greater extent than it did. This might suggest that students were not as alert to context/linguistic clues in their mother tongue as they should be. If this were true, then the automatic transfer of sensitivity to context from Bahasa Malaysia to English that is often assumed to exist, may have to be learned.

3. Table 3: Distribution of Scores on 4 University-Level Type Passages in English

Percentages of Test	Percentage of Students obtaining these scores
0 - 10	0.27
11 - 20	12.1
21 - 30	22.7
31 - 40	17.8
41 - 50	12.4
51 - 60	15.1
61 - 70	14.1
71 - 80	4.05
81 - 90	0
91 - 100	0

The score proficiency shows poor dispersion with the majority of students performing below par on skills viewed by the test designers as important to comprehension. The mean for the sample was 16.63, the median 15, with a standard deviation of 6.96. The majority of students scored 8 - 14 (total = 40) and only one student scored 32.

Diagnostic Testing

Following the analyses of the Reading Attainment Test, more pointed diagnostic tests were devised to investigate into further linguistic weaknessses of Malay-medium students. The selection of items to test was based on intuition of experienced language teachers of what the problem areas might be, for example, testing students' knowledge of cohesion in text, implicit discourse structures, the ability to derive meanings of unknown words from contextual clues using nonsense words etc. Examples of such test items are:

Item 1 The children went to the concert and I went _____ (too, so, besides, beside).

Item 2 The police found a number of clues on the scene of the crime to help them in their hunt for the robber. Moreover,

i. at least one person had seen the robber escape and thought he could help identify him.

ii. nobody had actually seen the robber so that they had no witness to help them.

iii. they had not been able to trace the car in which the robber escaped.

Item 3 The last hundred years have provided many new forms of transportation. People who have the money can fly or travel by car. People who are not so well off can flerg.

i. walk

ii. become bus drivers

iii. stay at home

iv. ride a bicycle.

Findings of these tests were sufficiently significant to incorporate these items into lesson plans.

The Development of the Reading Proficiency Test

1 **Preparation of the Test**

Following Dr Alan Davies' recommendation in 1976, the instrument for evaluating the UMESPP materials was to be a reading proficiency test. A test of this nature would be forward-looking in that it would plan to test the terminal behaviour of a proficient reader. Several reasons contributed to this option for a proficiency-type test rather than an achievement test, namely:

a The test was to be developed alongside the writing of the materials. As such the syllabus was not yet available for a test to measure clearly defined outcomes that were in harmony with instructional objectives;

b A proficiency test would by its very nature, be a more effective evaluative instrument of the materials. Achievement testing, in the form of progress checks, would have its place in the course.

c It was clear from the beginning that UMESPP methodology would be innovative in approach. Achievement tests based exclusively on exercises required by the Project might be of limited validity. It seemed preferable to develop a proficiency test using established techniques which, while capable of evaluating novel elements in the course, would reflect more generally recognizable terminal objectives.

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2 Determining Levels

Having decided that the test would be a proficiency type, one major finding of the Reading Attainment Test held an important implication for the development of the Reading Proficiency Test. It was evident that pitching tests at target levels requesting terminal behaviour right from the start, would not yield useful results. Instead a proficiency test utilising a levelled approach with passages in ascending order of difficulty might produce more useful data. In this way Malay-medium students might be better able to discover their entry reading level among the range of level difficulty.

An investigation into reading proficiency levels in residential secondary schools in Malaysia, where the medium of instruction was Bahasa Malaysia, interestingly supported the findings of the Reading Attainment Test. With a series of cloze tests of graded readers and using a proficiency index of 5-100 the following results were obtained:

Table 4: English Profiency Index of Residential Secondary Schools

Class / Medium	Form 2	Form 3	Form 4	Form 5
English	56.5	58.9	59	62.5
Malay	29.5	30.5	29.6	30.8

As expected, the English-medium student had a consistently higher level of proficiency in English than his Malay-medium counterpart. Improvement, however, from Form 3 onwards through to Form 5 for both groups was negligible or even absent. As Malay-medium students after Form 5 did not attend any English language classes, one might expect a stagnation, if not a deterioration, in proficiency score upon entry to the University two years later.

This study together with the tentative results of the Reading Attainment Test pointed to the need to be realistic in determining the base level of the Reading Proficiency Test. In such a test there would be a chance for students to spread out in performance. It would seem futile to set them a task beyond their capabilities right from the start.

According to the minimum target set in the Teacher's Handbook to the English Syllabus for Forms 1-5 in Malaysian schools, students should be able to read confidently at a good speed and with full understanding at the 2,200 word level by the end of Form 3. By the end of Form 5 they should be able to read unsimplified materials. A more detailed breakdown of minimum target level according to school levels is as follows:

End of Form 1	-	Level E	-	approximately 750 words
End of Form 2	-	Level C	-	approximately 1,500 words
End of Form 3	-	Level A	-	approximately 2,200 words
End of Form 4	-	Abridged	-	3,500 words
End of Form 5	-	Unsimplified		

In reality the level of reading proficiency was far below that of the minimum target. A rough guide is provided for the reading level of the Proficiency Index:

55 - 64	-	Reading Level A	-	2,200 word count
45 - 54	-	Reading Level B	-	1,800-1,900 word count
35 - 44	-	Reading Level C	-	1,500 word count
25 - 34	-	Reading Level D	-	1,200-2,000 word count

An average Malay-medium fifth-former seemed capable of reading at the 1,200 word level. The same test administered to a matriculation class (Form Lower 6), representing the best of the Malay-medium students, with top scorers being ex-English-medium students, yielded an index of 35.6, setting it at Reading Level C with a word count of approximately 1,500.

Bearing in mind the levels of reading proficiency attained in schools, it was thought that the UMESPP Reading Proficiency Test could aim at four distinct levels of difficulty, namely:

Level 1	-	600 word count
Level 2	-	1,000 word count
Level 3	-	2,000 word count
Level 4	-	authentic University texts

Attempts at simplifying authentic University-type texts were not altogether successful. In most cases, then, passages were derived from basal readers. In passages that were simplified, technical terms were glossed at the end of the passage.

3 Determining Texts and Items

In text selection there was a deliberate attempt to ensure that passage content would be of general interest, and would not favour any one particular discipline. This was essential as the test was envisaged to be used by the entire University.

A total of 12 passages with questions representing the four levels of difficulty were initially tried out to arrive at the final seven. The structures of questions and vocabulary used were, as far as possible, graded, except for words which were part of the testing apparatus. The feasibility of framing questions in Bahasa Malaysia was investigated. But the consultant team of Workshop 1977 decided to retain only the rubrics in Bahasa Malaysia, besides English, with the comprehension questions remaining in English. (For a further discussion and findings on this topic refer to article by Tan Soon Hock and Ling Chu Poh, 'The Performance of a Group of Malay-medium Students in an English Reading Comprehension Test', RELC Journal, Vol 10, No.1, June 1979, p.81-89.)

The possibility of employing various testing techniques was also explored - the traditional multiple-choice, the cloze (automatic) versus cloze (rational), both with multiple-choice, and cloze (without multiple-choice) versus cloze (multiple-choice). A procedure of testing recall in reading comprehension was also tried out. The findings were as follows:

a Recall and inferential skills were two decidedly important skills to be included in a reading comprehension test. However, on testing recall, students should not have the text with them. Administration of such a test is tedious and standardization of procedure cannot be guaranteed if the number of testees is large, and venues are spread out. In view of these practical considerations testing of recall was left out.

b The rational cloze test had a correlational coefficient of .7 with the traditional multiple-choice test. This is to say that the overlap in variance between the two measures is to the extent of approximately 50%. This might have been due partly to inadequate number of items. On the other hand, it could be said to be generally agreeing with research findings of a high correlation between multiple-choice and cloze technique. In view of this it was decided at the 1977 Workshop that the two testing techniques - the traditional multiple-choice and the rational cloze - would be used in the Reading Proficiency Test.

4 Trials

The final seven passages with extra questions were administered in April, 1977 to three schools in Kuala Lumpur (one English-medium and two Malay-medium, N = 292). From this extended version of the test, 100 questions based on an item analysis were chosen to form the pilot version which was

administered in June 1977, to the Faculties of Arts, Economics, Science, and to Pusat Asasi Sains students. Since then there has been close monitoring of the test in 1978 and 1979, with a view to amendments and modification, if needed. The test also underwent a further step of being answered by a set of native speakers and 15 Language Centre teachers of English to eradicate any lingering doubts as to the lucidity of the questions and the key.

In a proficiency test with graded passages it would be ideal to devise items testing identical skills at each level. In practice, this was not possible. Instead, items testing various skills were spread throughout the test. The fifty-item multiple-choice section based its taxonomy of reading skills broadly on Barrett's, with minor additions. They were:

1 The ability to extract factual information or understand sentences rephrased;

2 The ability to recognize the use of referential devices;

3 Vocabulary;

4 The ability to reorganize materials in a passage in a specified manner;

5 The ability to make inferences regarding information using either local contexts or when larger units of prose are involved;

6 The ability to evaluate information either in the passage or about the passage or to recognize or infer the main theme.

The following table provides a breakdown of the skills tested according to levels:

Table : Specification of Skills Tested

Skills / Level	A - D	E - F	Total
1. Level 1	2	5	7
2. Level 2	10	4	14
3. Level 3	9	5	14
4. Level 4	13	2	15
Total	34	16	50

Test Design

The diagram below lists the test components, test form and scores.

Diagram 1: Test Components, Test Form and Scores

Test Component	Test Form	No of Items	Scores
Passage One (600 word-level)	A Multiple-Choice	7	7
	B Cloze	7	7
Total of Passage One	A + B	14	14
Passage Two (1,000 word-level)	A Multiple-Choice	7	7
	B Cloze	7	7
Total of Passage Two	A + B	14	14
Passage Three (1,000 word-level)	A Multiple-Choice	7	7
	B Cloze	7	7
Total of Passage Three	A + B	14	14
Passage Four (2,000 word-level)	A Multiple-Choice	7	7
	B Cloze	7	7
Total of Passage Four	A + B	14	14
Passage Five (2,000 word-level	A Multiple-Choice	7	7
	B Cloze	7	7
Total of Passage Five	A + B	14	14
Passage Six (authentic University Text)	A Multiple-Choice	7	7
	B Cloze	7	7
Total of Passage Six	A + B	14	14
Passage Seven (authentic University Text)	A Multiple-Choice	8	8
	B Cloze	8	8
Total of Passage Seven	A + B	16	16
Total of Multiple-Choice		50	50
Total of Cloze		50	50
Grand Total		100	100

Time recommended: The test is at present divided into two parts - Part 1 has four passages and Part 2 the remaining 3. Each part should last for at least one and a half hours. A separate answer sheet is provided to facilitate marking.

Reliability coefficients of stability and equivalence range from .84 - .88 for one group of students at the Pusat Asasi Sains. The other three groups as a whole registered r = .69 - .93. The higher reliability coefficients for the former group of students might have been due to such factors as higher motivation in test-taking, fewer absentees and more complete answer scripts. There was some evidence to show that the low-ability students contributed to lowering the reliability coefficient as their performance at the more difficult levels was due more to guessing and chance. An initial validation of the test with the students' achievement scores in the fifth-form English subject paper produced a correlation coefficient of .7. Validation with end of year result is expected to be carried out.

5 **Plans for further development:**

Plans for the future include the following:

a Devising equivalent forms of the test;

b Building up an item bank;

c Standardizing the test and arriving at norms based on all undergraduate population in the country;

d Devising an achievement test;

e Devising a separate test for the discipline-related branch of the UMESPP materials, namely, *Reading Projects.*

The Evaluation of the Project Materials

In 1977 the pilot version of the Reading Proficiency Test was used as a pre- and post-test measure partly to evaluate the pilot materials used in class. Findings were based on two populations - that of the Arts, Economics and Science students, and that of the Pusat Asasi Sains students. These last were a more stable group, well-motivated, and presented least disruption to test administration in terms of completing test scripts and attendance. Data for the first group was confounded by the fact that the number of hours of English varied, absenteeism for the post-test was startling. All in all, the most significant finding of the pilot material seemed to be that it appeared to be more suitable for the average scorer in the Reading Proficiency Test. Low scorers did not seem to have benefited from the programme. This implied a need for a stepping-stone programme bridging the entry level of the students with the starting point of the pilot materials. This has been

promptly attended to in the final version of the UMESPP materials. For a more lengthy discussion, refer to:

1 Tan Soon Hock and Ling Chu Poh, 'A Study of the Performance of Arts, Economics and Pre-Science Students in a Reading Proficiency Test and its Implications for the Formulation and Evaluation of a Reading Comprehension Programme', UMESPP Occasional Paper 2, 1978, Language Centre, University of Malaya.

2 Tan Soon Hock and Ling Chu Poh, 'Performance Levels of Pusat Asasi Students in a Graded English Comprehension Test. Some Issues and Implications for the University of Malaya English for Special Purposes Project', UMESPP Occasional Paper 4, 1979, Language Centre, University of Malaya.

The academic session of 1978/79 saw the use of the first of the series of UMESPP books, *Reading for Academic Study, Book 1*. Before its introduction in class, the Reading Proficiency Test was again administered to stream students into homogeneous groups according to test scores in order that their performance might be later evaluated through the test.

Alongside test evaluation, students and teacher fill out evaluation sheets for every lesson. This is to ensure that any further revision of materials would be closely scrutinized, objectively and subjectively. The same rigour will be adopted for the rest of the books.

Conclusion

This paper, as can be seen, is not exhaustive. It is only an attempt to highlight the various aspects of the testing programme, the stages it underwent, and the tentative results obtained. Much remains to be done in order to create a suitable instrument by which the efficiency and effectiveness of the UMESPP materials can be measured with sensitivity. Indeed, the task of testing is an on-going process.

THE REVISED VERSION OF THE UMESPP MATERIAL: A RESUME

Nesamalar Chitravelu

Introduction

Skills for Learning, the course which finally emerged from the pilot version of the UMESPP material, still upholds the same pedagogic principles and still uses the same methodological devices as the pilot version. The brief for the Revision Workshop which was convened in April 1978 was too conservative to allow the students the benefit of classroom tested methods and texts instead of pursuing the endless search for 'better' aims and devices, however beguiling these may be. Except for the changes in *Reading Projects: Science*, a large measure of the changes made to the material were therefore more in the nature of refinements and adjustments to 'get the right fit' than drastic overhauls of pedagogic design. Most of these changes in the lessons were within the terms of reference of the Units of which the lessons were constituent parts. The aims and pedagogy of each Unit and the revisions made to them have already been discussed in the rest of the papers in this publication. This paper will, therefore, confine itself to describing the nature of the revisions which affected the course as a whole. These will be described under four main headings: 1. Integration, 2. Rationalization, 3. Standardization, 4. Rectifying Inadequacies.

Integration

The Students' Books, Teacher's Notes and Course Books of the four units in the pilot version came to a phenomenal 26 volumes. This caused much confusion among students and foreign experts asked to review the material and great administrative and storage problems for the teachers. In the pilot version marketability was not a major factor in the packaging of the materials. Now it is. In view of all this, it was decided during the Revision Workshop that the three common-core units would be integrated and published under one cover. *Reading Projects*, because it would differ with each faculty, would remain a separate, though still complementary, component. The 26 volumes of the original pilot version have now been collapsed into 6 volumes, organised in this way:

SKILLS FOR LEARNING

READING FOR ACADEMIC STUDY	**READING PROJECTS**
(Formerly Units 1, 2 & 4)	(Formerly Unit 3)
Students' Book 1 & 2	Students' Book
Course Manual 1 & 2	Course Manual

Rationalization

MAINTAINING THE RIGHT BALANCE OF SKILLS

The decision to integrate involved the bringing together of disparately prepared material. A large degree of freedom was given to the designers of each of the Units in deciding on the content of the units for which each was responsible. This sometimes meant overlaps. Admittedly, overlap, when it is in the form of reinforcement of a skill taught in one unit through a different mode and at a different time in another unit, is beneficial. But overlap sometimes also means 'overkill'. When we viewed the course as a whole and found this kind of imbalance, then we have systematically pruned off the unnecessary bits.

Re-Sequencing

Maximizing effectiveness of the course has also involved taking into account the results of integration in terms of its effect on the company each lesson of the originalunits now kept as a result of the changed environment of the integrated course. A mechanical sandwiching - one lesson of *Strategies for Reading*, followed by one lesson of *Reading for Meaning*, followed by one lesson of *Spoken Interaction* and back again to *Strategies for Reading* - would have destroyed the coherence of the course. Certain lessons needed the original company they kept for maximum effectiveness. Each of the lessons had already been revised within the terms of reference of the Unit to which it originally belonged. In putting together the integrated course, the aims of the original unit and the needs of the new integrated course had to be balanced and a new compromise arrived at. This largely meant grouping of related lessons within the original units and then positioning them in relation to other groups of lessons from other units for maximum mutual benefit between lessons of different units and greatest internal coherence of the new integrated course.

Simplification and Standardization of Rubrics

Pilot testing showed that the instructions given in the Students' Book left much to be desired. Metalanguage difficulty was often in excess of task difficulty and a task which involved a 5-line text sometimes had a 10-line rubrics to precede it. An extensive standardizing and simplifying exercise was carried out on rubrics across the whole range of the UMESPP materials in order to minimize confusion or uncertainty on the part of the students. Standard formats were used for recurring exercises and activities in an attempt to reduce the amount of time and energy the student spends deciphering unnecessarily complex and lengthy rubrics which divert his energies from the main task before him. Specific instructions were physically separated from related information or explanation through the use of different typefaces.

Unnecessary verbiage was cut out through the use of imperatives in preference to such chatty forms as "Now see if...," "Try and...". The manner in which the answer was to be expressed was also clearly indicated. The student was told to "Tick the correct box", or "Note down your answer", or "Match the items".

Elimination of Coursebooks

In the general exercise to cut down the number of books in the UMESPP course one of the first things to go was the Course Book. Each of the original four units had Course Books but each defined the role of the Course Book differently according to its own pedagogic needs. This added to the general confusion which arose from the sheer numbers and types of volumes of UMESPP material.

A close look at the opportunity lost involved in forgoing these Course Books showed that they were dispensable. The reasons for which they existed could be realised through alternative means.

In *Reading for Meaning* and *Reading Projects*, the Course Book was mainly an answer book and since answers were already given in the Course Manual for teachers, they were really redundant.

In *Strategies for Reading*, the Course Book was used as a resource book for two reasons: (a) to 'hide' texts which, for some pedagogic reason, should not be seen by the student until he has finished an activity, (b) where constant reference between a set of texts and a given number of tasks was required, the texts were put in the Course Book to avoid unnecessary turning of pages. The first aim is now realized by 'hiding' the text in an appendix given at the back of the Students' Book. The page in which the text is to be found is only given in the Course Manual for teachers. For the achievement of the second aim two devices have been used. The texts which were originally in the Course Book have now been put in the appendix and the activities which involve these kinds of texts have paired work as their mode of operation. One student of each pair is instructed to keep his book open where the tasks for the activities are given while the other student has his book open at the page or pages where the texts are given. In this way the need for constant turning of pages is avoided.

In *Spoken Interaction* different Course Books contained complementary material required by Student A while the other Course Book contained mat erial required by Student B in activities where it was necessary that Student A or B should not see the material the other had. This aim was again achieved through putting the material for Student A and Student B in different parts of the appendix at the back of the Students' Book. Again, only the Course Manual for teachers carried information regarding the location of each set of materials.

Elimination of a Confusing Range of Labels

Rationalization for maximum educational economy also took the form of elimination of confusing labels. In its original form, the Course had an unnecessarily complex labelling system. There were *Units*, *Parts*, *Sections*, *Phases*, *Lessons*, *Steps*, *Activities* and *Exercises*, and the conceptual or pedagogic boundaries each demarcated were often nebulous. A systematic attempt was made to eliminate all unnecessary labelling with the result that the present Students' Book only contains the labels *Lesson* and *Activity* and, in those lessons which absolutely require it, *Step*.

Standardization

The relative independence of the course designers of the pilot versions of each of the Units also resulted in unnecessary difficulties in styles of presentation of the material. In the integrated form this called for standardization. The most effective features in the layout and system of signposting used in the original four Units were sieved out and with these as guides, a model layout for the Students' Book and Course Manual was prescribed. The kind of material which should go under each sub-section of the Course Manual too was standardized. Some lessons in the pilot version had introductions which told students what skills they would learn in that lesson. Some did not. As pilot testing showed that involving students in the achievement of aims was a sound pedagogic practice, all lessons now carry student introductions. Banner headings and lesson titles too needed standardization. Now they reflect the main skill taught in the lesson or activity. Formerly, only some Units gave the mode of operation for each activity in the margin. Now all activities in all lessons indicate this through specially devised symbols.

Rectifying Inadequacies

Introductory Course

It was found in the pilot run that the considerable novelty in the UMESPP approach stunned some students into non-participation. The change from their usual expectations and style of learning in the language class and the assumptions that the UMESPP course imposed on them were rather drastic. An easier transition was required. This has been attempted in a new 28–lesson introductory phase with the specific aim of orientating students gradually to all that is new in the course: what they are expected to learn as well as how they are expected to learn. Many of the lessons for this introductory phase were obtained by re-gearing existing material. Some, however, had to be newly written.

Finale

With all the common-core materials now under one cover, the need for a culmination which expresses the stated terminal behaviour of the Course became

apparent. A new Finale of 12 lessons now requires students to synthesize all the skills they have acquired during the Course. They are required to research and - through group discussion and teacher consultation - to write up a paper on the theme of Conservation. A bibliography and an anthology which reflects all the different kinds of texts which have formed the corpus of this Course are given to start the student off on the research project.

Additional Help for the Teacher

Although the amount and quality of help to teachers in the original Teacher's Notes was, by and large, sufficient, some points which would have improved the efficiency of the teacher were overlooked. The original Units left it to the discretion of the teacher to choose activities as checks of student progress. This led to one of three things: there was no check kept on progress at all or there was inconsistency in the number and type of activities chosen or the activities chosen were inappropriate. Now, activities which can be used as progress checks have been picked out for the teacher and indicated in the Course Manual through the use of an asterisk*. As recycling in the Course is unconventional, is not always obvious, and is dependent to a large measure on the initiative of the teacher, cross-reference to related lessons is given for each lesson in the Course. Reminders regarding special equipment for oncoming lessons too are provided to ensure the smooth running of the lessons.

Self-Study Vocabulary Exercises

Classroom testing of the UMESPP material showed that the students' knowledge of vocabulary was even poorer than the Reading Attainment and diagnostic tests indicated. Despite repeated attempts by the UMESPP materials and teachers to make the student forget his habit of regarding the number of words he learns per lesson as a measure of the amount of learning he had done in that lesson, and therefore indiscriminately copying down the meanings of as many 'hard' words as he could, he still continued to do so. It was obvious that the strategies taught to decode word meanings had to be complemented by actual building up of the students' recognition repertoire of the meaning in context of subtechnical and other important lexical items which occur in academic texts. As time is precious in the UMESPP classroom and the particular advantages of group, paired and class work are not really necessary for vocabulary acquisition, it was decided that any vocabulary exercise that is given should be prepared for self-study outside class time. Each lesson now ends with a self-study multiple-choice vocabulary exercise. The words for the exercise are selected from the text for the lesson and then put into a different context for the exercise. Two distractors are given and many of these are taken from previous lessons so that students can reappraise them and thus reinforce their understanding of their meaning.

Provision for Variation

The pilot material did not sufficiently take account of variations between individual students and between groups of students. Each main lesson of 50 minutes is now followed by material for another 25 minutes. In the introductory 28 lessons, this additional material is intended for use by faster students or for use on a longer course or for recycling skills when necessary for weaker groups of students. In the subsequent lessons, this material provides alternatives to activities in the main lesson. This additional material also enables the course to accommodate differences between faculties. The Centre for Foundation Studies in Science, for instance, works on a semester system and requires material for 32 weeks at 4 lessons per week per academic year. The Arts Faculty requires material for only 25 weeks at 4 lessons per week while Law and Economics require materials for 25 weeks at 6 lessons per week.

Conclusion

As was pointed out earlier, the brief for the workshop that was convened to revise the UMESPP materials was to be conservative in the changes made to the material so that the advantages of pilot testing the material would not be lost. However, we have not regarded the whole exercise of writing the material and pilot testing them as merely an attempt at producing the required number of lessons. We have also treated the experiment as an exploration of the determinants of viability within the range of possibilities that our intuitions, imagination and knowledge made available to us. This has, to some extent, given the material a semblance of being overbold. It appears to throw overboard many time-honoured principles in language teaching and substitute in their place a course whose pedagogic roots dig into grounds which for years have been the subject of educational polemics.

On paper and viewed purely theoretically, the semblance of boldness appears valid. In practice, however, the materials have stood up very well against the test of the classroom. For this alone the material is worth serious consideration by all those institutions which, like us, face the serious danger of attrition of academic standards if an answer to the problem of access to knowledge through the reading of academic textbooks in English is not solved. Even if all our needs are not exactly the same, there is a remarkable similarity in the characteristics of the target populations our materials are written to serve. Our approach is worth adapting even if regional variations prevent a total adoption. If it is not worth adapting or adopting, then it must be at least worth quarrelling with because the answer it gives is to a question which has engaged the best minds and greatest expertise in the field; because the answer it gives works in the classroom; and because any serious attempt to reconcile what appears to be the theoretical implausibility of the course and its empirical viability must surely be revealing. And somewhere in the process of adopting it, adapting it or rejecting it someone must be learning.

Letter to the Editor

Dear Sir

ESP and TENOR

ESP

My recent article on ESP (ELT Documents 103) was largely a catalogue of questions, and may have been lacking in general coherence. Certainly, Mr Kennedy (ELT Documents 106) at times argues about points that I did not intend to make. I would therefore like briefly to respond to his welcome continuation of the discussion.

Mr Kennedy does say much that I would agree with, and makes some points that I would carry even further. For example, he observes that it is EFL (and not merely ESP) that has been 'driving on regardless of unsolved problems': I would extend this to teaching in general and even life itself. Again, the fact that there exists 'no suitable system for storage and retrieval of materials produced worldwide' also applies to the teaching of all subjects and to a great deal besides. I was after all writing not about EFL or teaching in general, but about ESP only; to say that one lemon is bitter is not to imply that other lemons are not.

What led me to write about ESP in the first place was my uneasiness about the whole business of 'satisfying the learner's needs' - a phrase which smacked of hedonism when I first met it, but which now I find arrogant. It seems to me that an 'I-know-what's-best-for-you' attitude has developed; and Mr Kennedy has said nothing that dispels my unease. That the learner's own wishes should be taken into account he concedes only grudgingly; and he adds

> However, there can be pitfalls . . . A learner's notion of proficiency in English may be naive or based on inadequate educational experience.

Well, I know of at least three applied linguists of high repute who have also been known to exhibit naive notions based on inadequate teaching experience. I do not wish to suggest that the customer is always right; I do suggest that the supplier may in certain respects be wrong. It may well be, for example, that there is no great merit in concentrating on study skills when dealing with the overseas university student in Britain; it is possible that a 100% oral interaction course would increase social confidence so far as to change both the on-duty and the off-duty habits of the student in such a way as to increase his exposure to spoken English immensely, thereby making it much easier for him to understand lectures, participate in seminars, seek help, and so on. It is possible that

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such an increase of confidence in using the spoken language would transfer positively into his reading and writing skills. It is possible. I would just like everyone involved in the ESP industry to be more ready to admit that its processes are full of uncertainties, and to be less prone to constructing pseudo-scientific justifications. Again I did not mean to imply in my previous article that because of the uncertainties we should do nothing until we have the results of relevant research. God forbid. I value accounts of average trial-and-error teaching every bit as much as the results of average research. Mr Kennedy mistook my drift here.

To conclude this first part: while we hear of learners who (despite claims that their needs are being satisfied) are apathetic about or even antagonistic towards the instructions they are receiving, we should question the bases upon which ESP courses have been constructed. In the rest of this article, I want to comment on one puzzling suggestion that Mr Kennedy makes.

TENOR

A few years ago I half-jokingly coined this acronym for the sort of situation in which a learner finds himself studying EFL simply because it is a compulsory subject: the Teaching of English for No Obvious Reason. Most of the world's school children perceive no particular set of purposes to which they will put any English that they learn; and the younger the learner, the more remote the prospect of ever using English at all. (I am not here dealing with those countries where English still has a national function, eg use as a medium of education).

Perhaps the most worrying part of Mr Kennedy's article is where he suggests 'approaching all English language teaching situations from an ESP viewpoint'. I cannot see how this could be done in TENOR situations other than by imposing specific purposes upon the learner. For instance, given a group of Spanish eleven year-olds, we might decide that since tourism is one of Spain's largest sources of income and since the British form one of the largest tourist nationality-groups, the children should be given a course in 'English-for-dealing-with-tourists'. But this would be to impose our own specific purposes. The result would be a mockery of educational practice, for we would be limiting the children's roles instead of opening up a range of possibilities for them; but if we were to provide for a range of possible uses we would be dealing with the range of Englishes associated with them and would consequently no longer be dealing with ESP as it is usually understood.

Mr Kennedy is nearer the mark when he cites the teaching of immigrants in Britain. This is a case of the sort that I excluded from TENOR - a case where English has some clearly specifiable functions, perhaps the most important of which is its use as the medium of education. Teaching a

child the sort of English that will help him in his studies could perhaps be regarded as ESP (*or rather, EAP*). *Indeed, in anglo*phone Africa it has been regarded as such in all but name, for some decades. Nevertheless Inspectors and teachers do need continually to be reminded of this function.

There are other points that I could make, and further contentions; but I do not wish to seem ungrateful to Mr Kennedy for responding to my queries. I hope his remarks will elicit a fruitful response from other readers.

Gerry Abbott
English Language Advisor, Sarawak